19th CARDIOVASCULAR SUMMIT
TCTAP 2014 GEAR UP for the next innovation

Update on Relationship Between Platelet Reactivity and Clinical Outcomes

How to Select Optimal Patients for "Prasugrel"?

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Disclosures

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- Astrazeneca
- Otsuka
- Accumetrics
- Haemonetics
- Han-Mi Pharmaceutical
- KSIC
- GNUH

Honoraria/Consulting

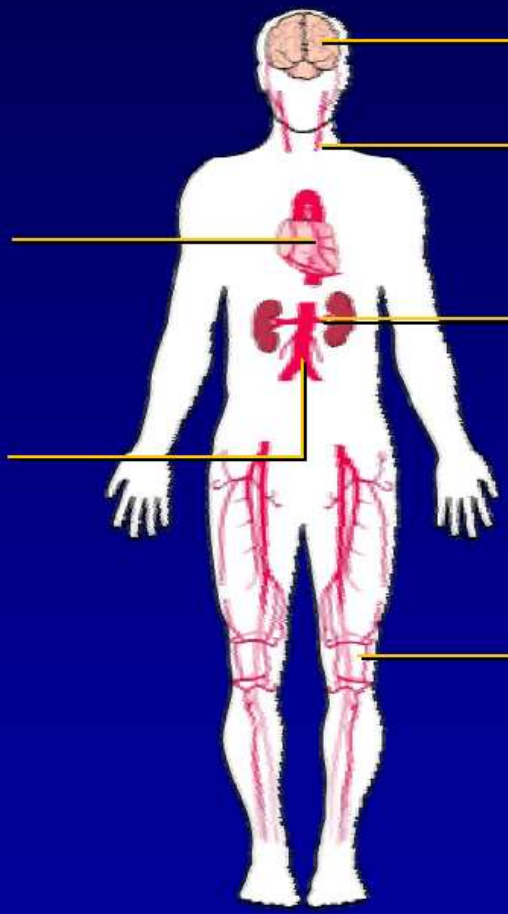
- Astrazeneca
- Daiichi Sankyo Inc
- Sanofi-Aventis
- Otsuka
- Haemonetics
- Dong-A Pharmaceutical

Atherothrombosis: Clinical Manifestations

Acute coronary syndromes
- STEMI
- NSTEMI
- Unstable angina

Stable CAD
Atrial Fibrillation
Angioplasty
Bare metal stent
Drug eluting stent
CABG

Abdominal aortic aneurysm (AAA)



Stroke
TIA
Intracranial stenosis

Carotid artery stenosis
CEA
Carotid stenting

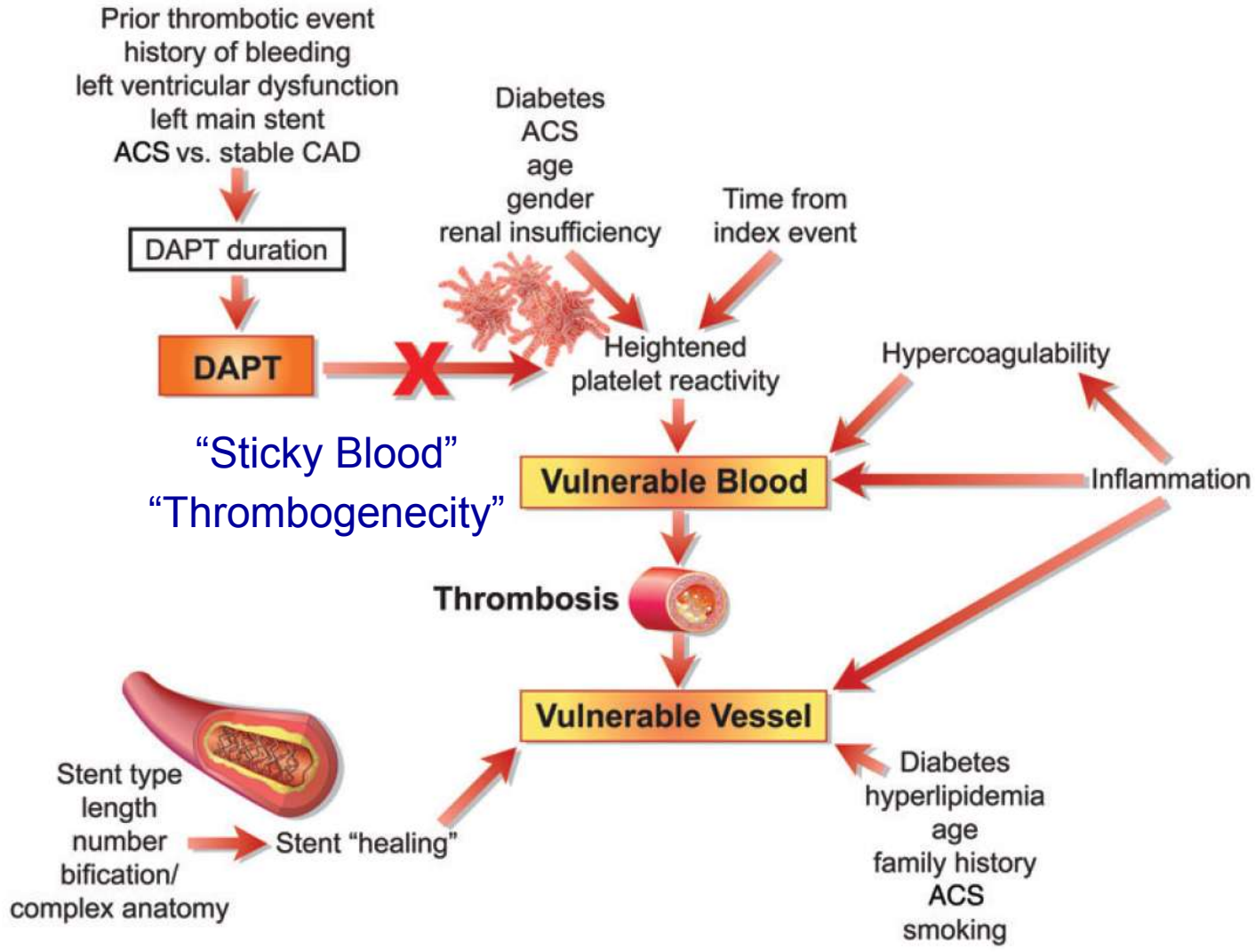
Renal artery stenosis
Renal artery stenting

Peripheral arterial disease
Acute limb ischemia
Claudication
Amputation
Endovascular stenting
Peripheral bypass
Abnormal ABI

Meadows TA, Bhatt DL. *Circ Res.* 2007;100:1261-1275.

Pathogenesis of Atherothrombosis:

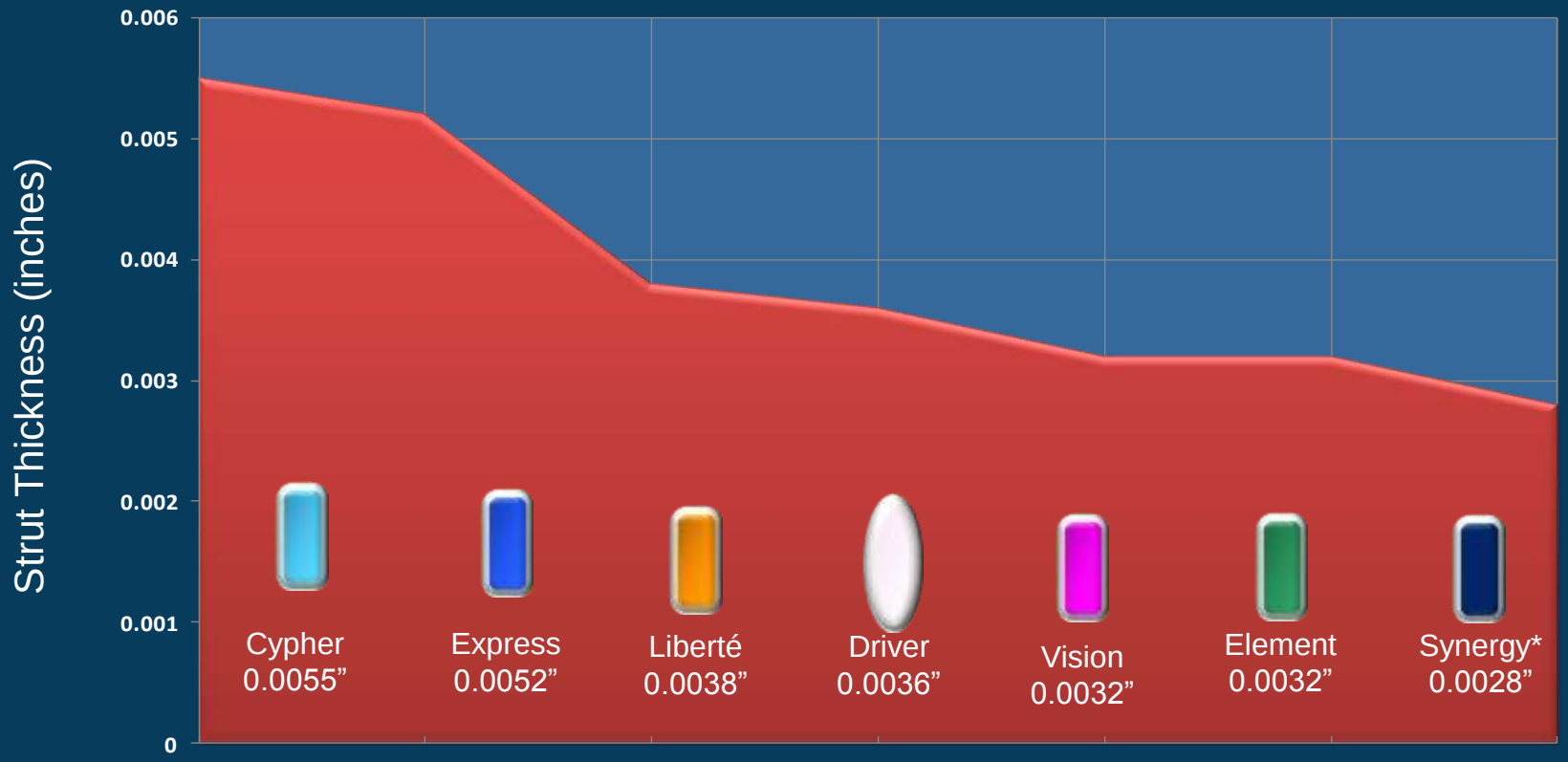
Interplay Between Vulnerable Vessel and Blood



Gurbel P, et al. *Eur Heart J* 2013; E-pub.

Thinner Stent Struts, Less Polymer Coating, Lower Drug Load

- Thinner stent struts associated with improved clinical outcomes[1-4]

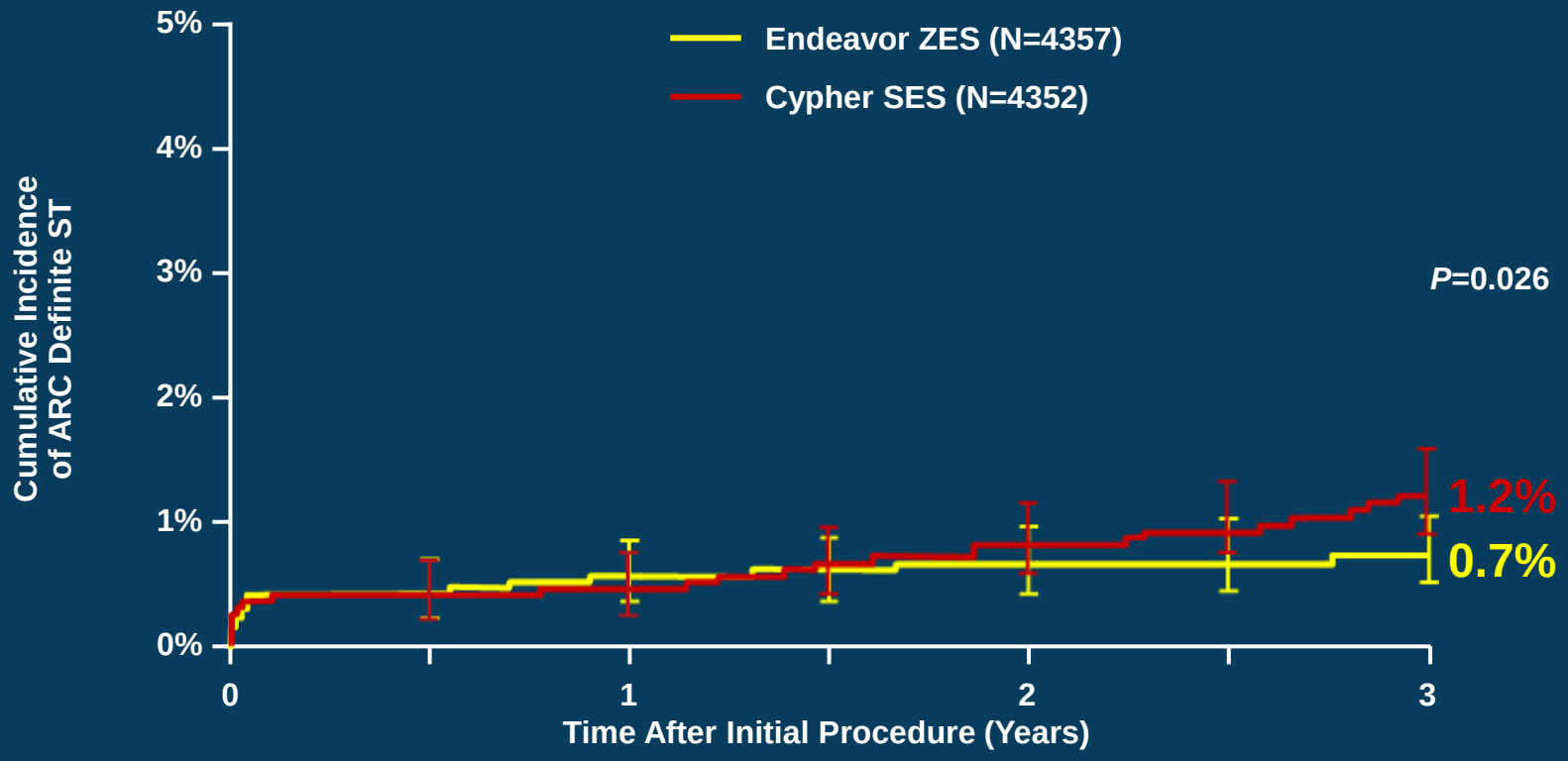


1. Kastrati A et al. *Circulation*. 2001;103:2816-2821.
2. Rittersma SZ et al. *Am J Cardiol.* 2004;93:477-480.
3. Pache J et al. *J Am Coll Cardiol.* 2003;41:1283-1288.
4. Turco M et al. *JACC CI.* 2008;1:699-709.

PROTECT Study

Largest RCT & First Trial Powered for Comparing ST with DES

Definite Stent Thrombosis



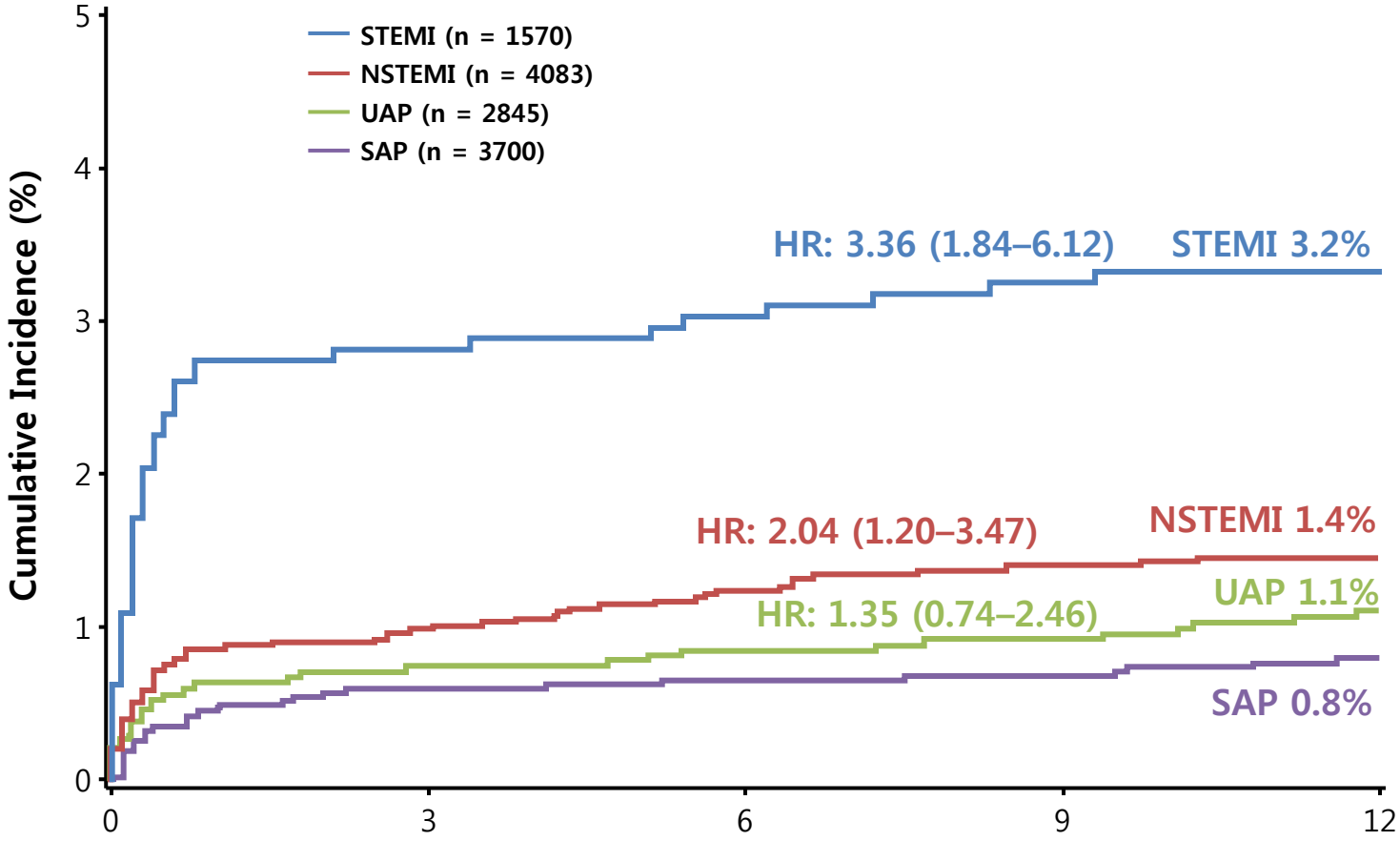
Patients at Risk				
E-ZES	4357	4348	4232	4129
C-SES	4352	4344	4216	4106

Camenzind E et al. *Lancet*. 2012;380:1482-90.

ST Risk is Different by Clinical Presentation

Experience from MedStar Washington

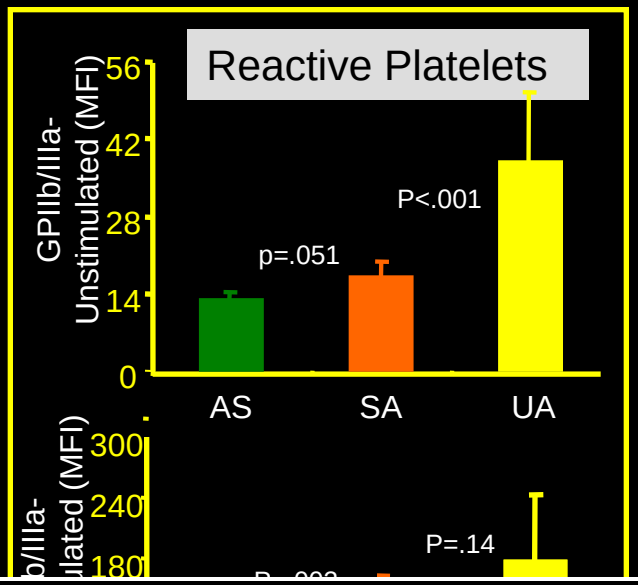
Definite or Probable ST

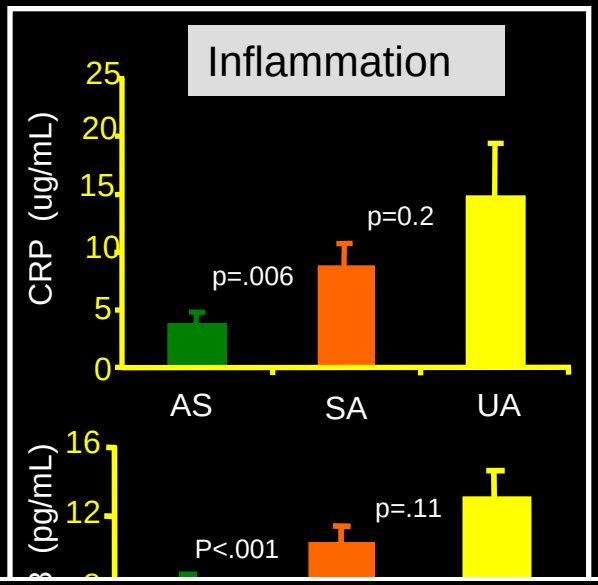


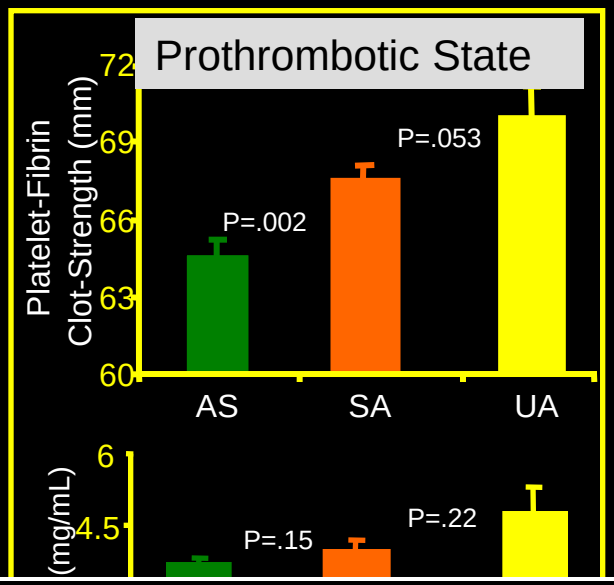
Joshua PL et al. TCT 2013.

Relation: Platelet Physiology, Inflammation and Disease Activity

AS = Asymptomatic Patients, SA= Stable Angina, UA= Unstable Angina



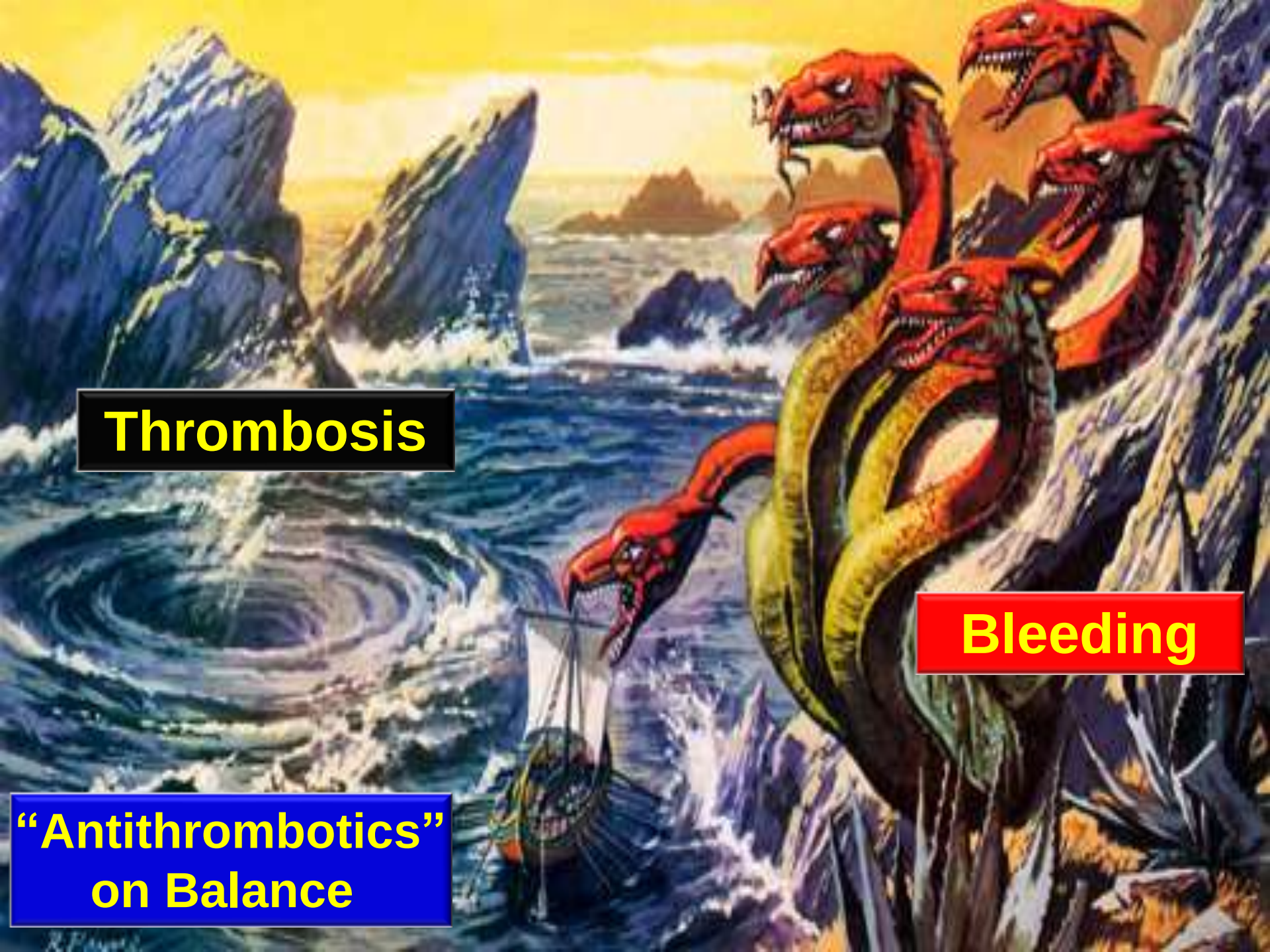




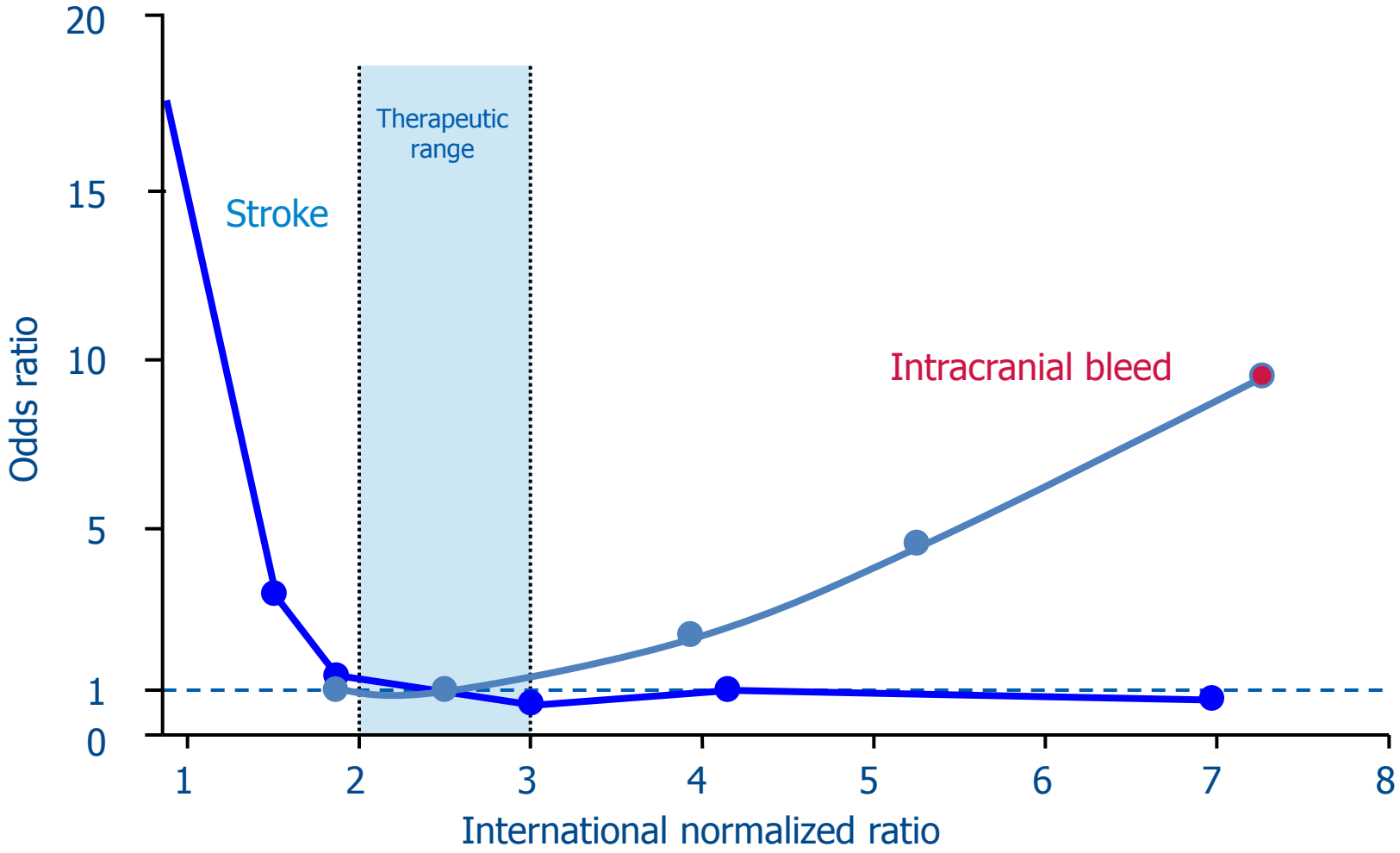
"Disease activity" is the integrated whole of "vulnerable vessel" and "vulnerable blood" (sticky blood or thrombogenecity).

Stable AP < Unstable AP < NSTEMI < STEMI

Level of IPA: Stable AP < UAP < NSTEMI < STEMI


Thrombosis
Bleeding
“Antithrombotics” on Balance

“Warfarin”: A Narrow Therapeutic Window



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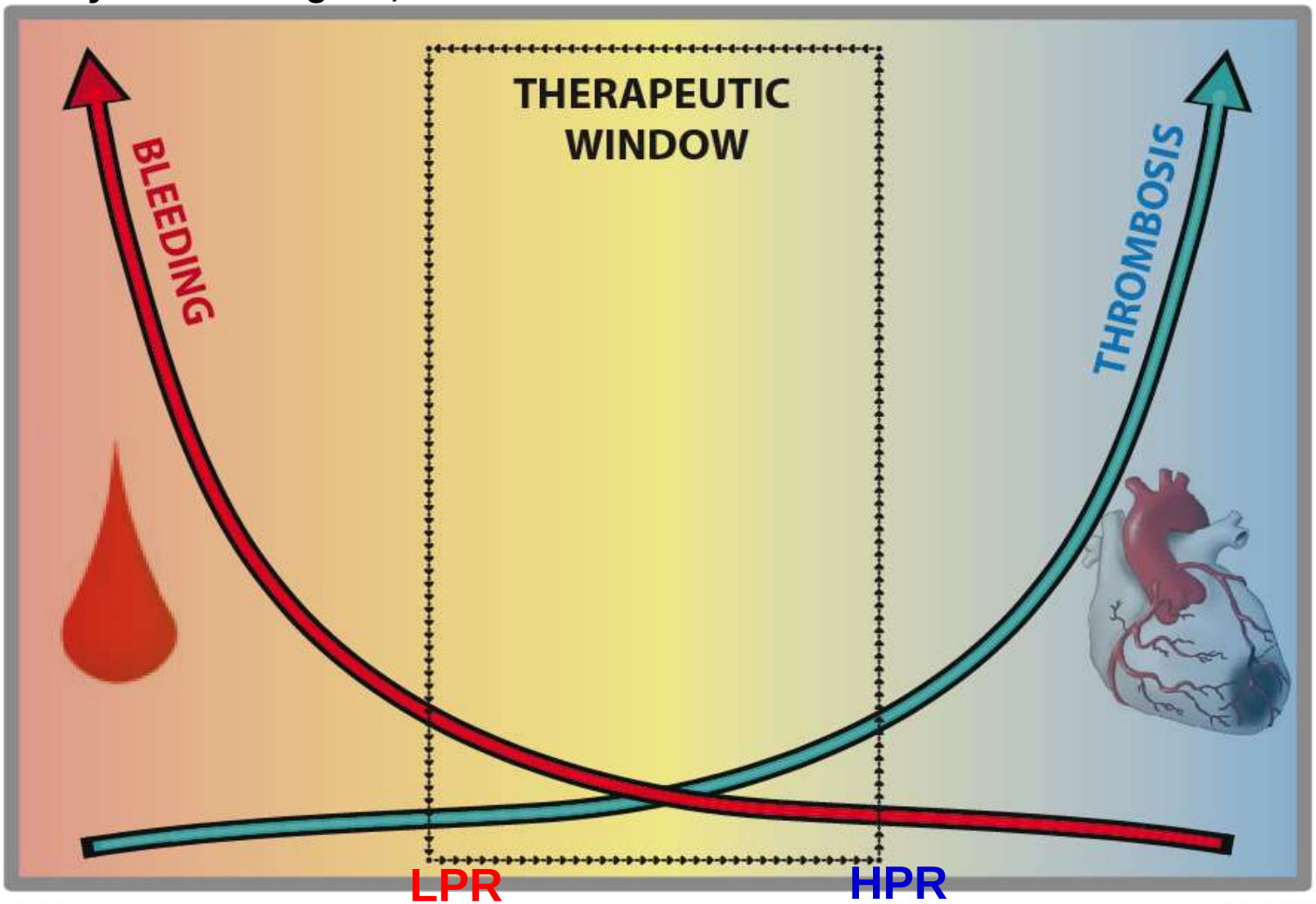
ACCF/AHA/HRS focused update guidelines: Fuster V et al. Circulation 2011;123:e269-e367; Wann LS et al. Circulation 2011;123:104–23 & Circulation 2011;123:1144–50

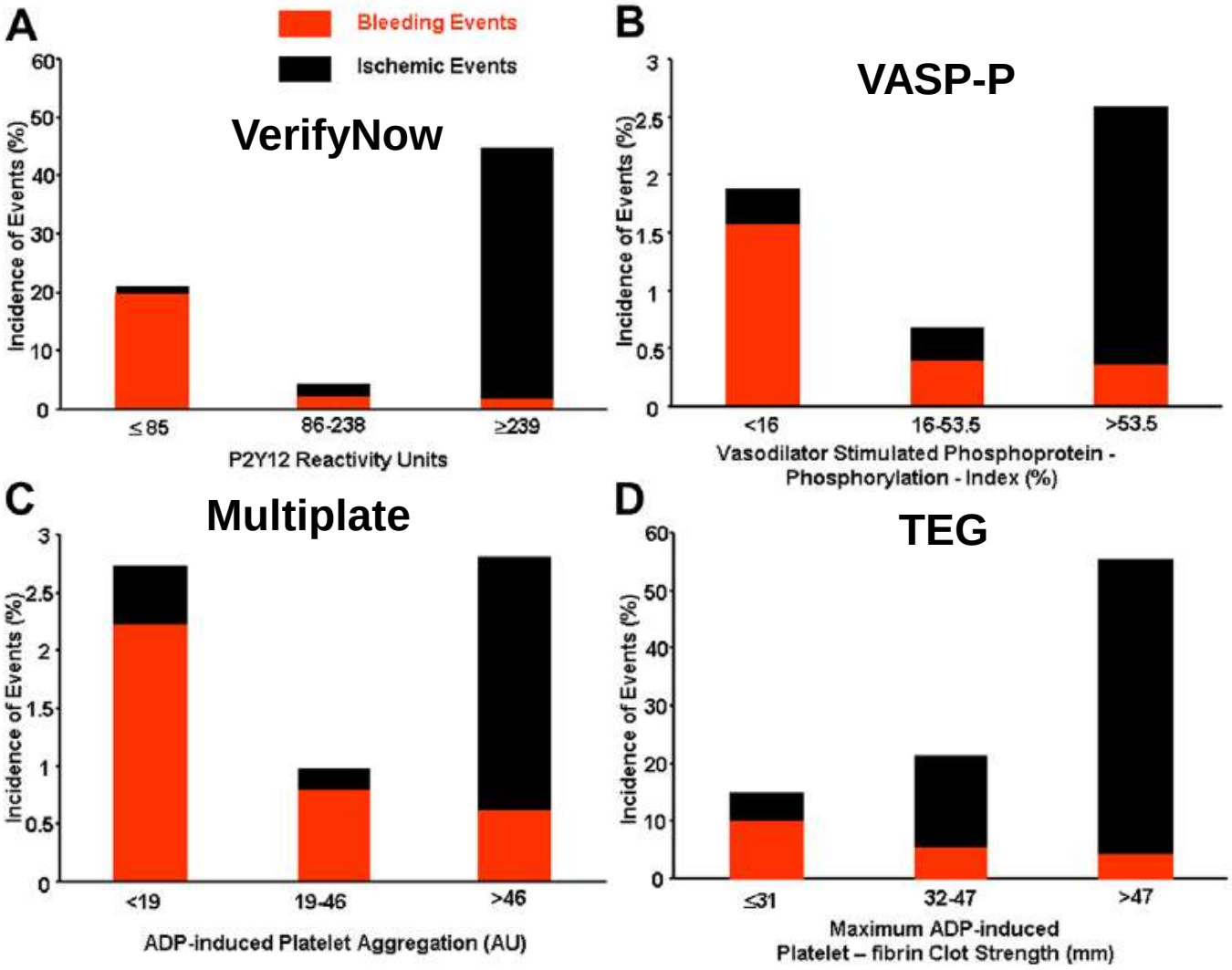
Therapeutic Window of $P2Y_{12}$ Reactivity

Tantry US… Jeong YH, et al. Consensus Statement for LPR and HPR. JACC 2013.



MEA:	0U	20U	50U	200U	
LTA:	0%	35%	60%	100%	(20μM ADP)
VASP:	0%	20%	50%	100%	
VerifyNow:	0	85	235	550 PRU	

Relationship Btw PR and Clinical Outcomes



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Campo et al. JACC 2011; Bonello et al. JTH 2012;
Sibbing et al. JTH 2010; Gurbel et al. AHJ 2011.

ADAPT DES at 1 Year (n = 8583):
MV Analysis of ST and Major Bleeding by PRU

	Event	No event	Unadjusted HR (95% CI)	p value
Definite ST				
Number of events	53	8530		
Deaths	5 (9·6%)	156 (1·9%)	5·47 (2·25–13·31)	<0·0001
MI without ST				
Number of events	224	8359		
Deaths	21 (9·7%)	140 (1·7%)	5·78 (3·65–9·14)	<0·0001
Bleeding				
Number of events	531	8052		
Deaths	45 (8·6%)	116 (1·5%)	5·97 (4·23–8·42)	<0·0001

Stone GW, et al. *Lancet* 2013;382:614-23.

Meta-analysis: Intensified vs. Standard Rx in HPR

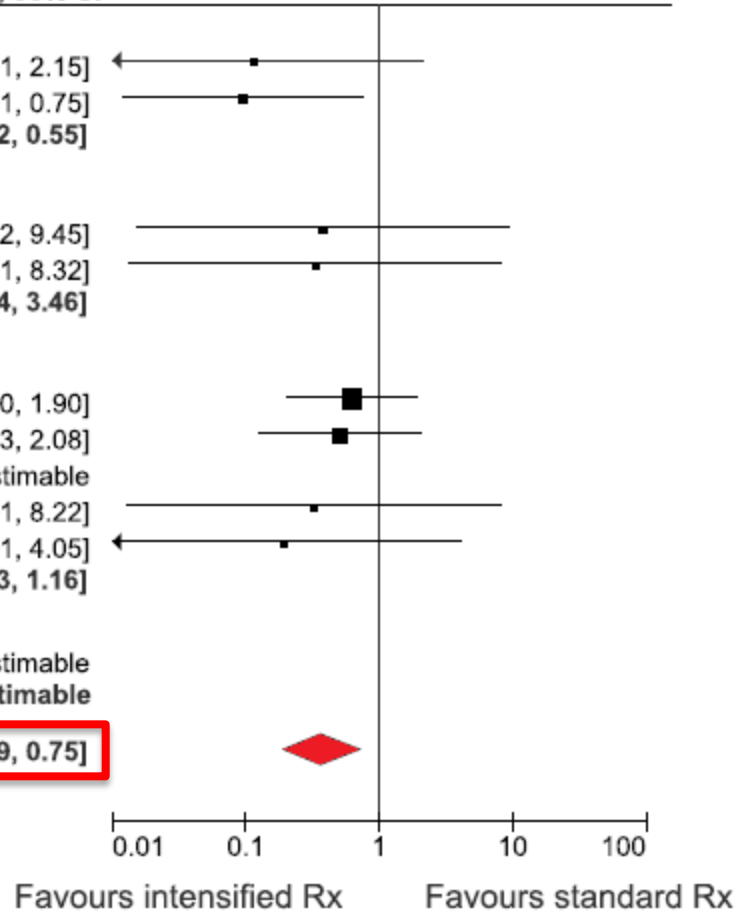
First author	Acronym	Design	Patients (intervention/control)	Platelet function assay	Cutoff for HPR	Intensified strategy
BONELLO	-	Multicenter RCT	78 / 84	VASP	≥50% VASP-PRI	3x repeated LD of 600 mg clopidogrel based on VASP-PRI
BONELLO	-	Multicenter RCT	215 / 214	VASP	≥50% VASP-PRI	3x repeated LD of 600 mg clopidogrel based on VASP-PRI
VALGIMIGLI*	**3T/2R**	Multicenter RCT	79 / 91	VerifyNow P2Y12	<40% P2Y12 inhibition	Tirofiban 25 ug/kg bolus + 0.15 ug/kg/min infusion
CUISSET	-	Single center RCT	74 / 75	LTA 10 μM ADP	≥70% AGGmax	Abciximab 0.25 ug/kg bolus + 0.125 ug/kg/min infusion
PRICE	**GRAVITAS**	Multicenter RCT	1109 / 1105	VerifyNow P2Y12	≥230 PRU	600 mg LD + 150 mg MD clopidogrel
WANG	-	Single center RCT	150/156	VASP	≥50% VASP-PRI	Stepwise increase in clopidogrel MD up to 375 mg according to VASP-PRI
ARADI	**DOSER**	Single center RCT	36 / 38	LTA 5 μM ADP	≥34% AGGmax	600 mg LD + 150 mg MD clopidogrel
ARI	**EFFICIENT**	Double center RCT	47 / 47	VerifyNow P2Y12	<40% P2Y12 inhibition	150 mg MD clopidogrel
HAZARBASANOV	-	Single center RCT	97 / 95	Multiplate 6.4 μM ADP	>46 U	600 mg LD + 150 mg MD clopidogrel
TRENK	**TRIGGER-PCI**	Multicenter RCT	212/211	VerifyNow P2Y12	>208 PRU	60 mg LD + 10 mg prasugrel

Aradi et el. Int J Cardiol 2013;167:2140-8.

Meta-analysis: Intensified vs. Standard Rx in HPR
Risk of Stent Thrombosis

Study or Subgroup	Tailored arm Events	Total	Control Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Clopidogrel reloading						
Bonello	0	78	4	84	5.6%	0.11 [0.01, 2.15]
Bonello2	1	215	10	214	11.4%	0.10 [0.01, 0.75]
Subtotal (95% CI)					**17.1%**	**0.10 [0.02, 0.55]**
Periprocedural GPI						
3T/2R*	0	79	1	91	4.7%	0.38 [0.02, 9.45]
Cuisset	0	74	1	75	4.7%	0.33 [0.01, 8.32]
Subtotal (95% CI)					**9.4%**	**0.36 [0.04, 3.46]**
Increased clopidogrel MD						
GRAVITAS	5	1109	8	1105	38.8%	0.62 [0.20, 1.90]
Wang	3	150	6	156	24.7%	0.51 [0.13, 2.08]
DOSER	0	36	0	38		Not estimable
EFFICIENT	0	47	1	47	4.7%	0.33 [0.01, 8.22]
Hazarbasanov	0	97	2	95	5.2%	0.19 [0.01, 4.05]
Subtotal (95% CI)					**73.5%**	**0.51 [0.23, 1.16]**
Prasugrel						
TRIGGER PCI	0	212	0	211		Not estimable
Subtotal (95% CI)						**Not estimable**
Total (95% CI)		**2097**		**2116**	**100.0%**	**0.38 [0.19, 0.75]**
Total events	9		33			

Heterogeneity: Tau² = 0.00; Chi² = 3.65, df = 7 (P = 0.82); I² = 0%
Test for overall effect: Z = 2.75 (P = 0.006)

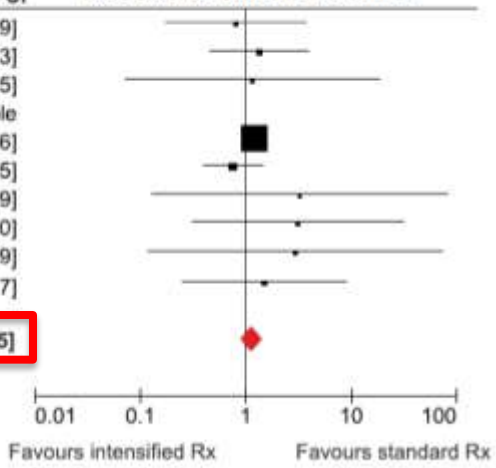


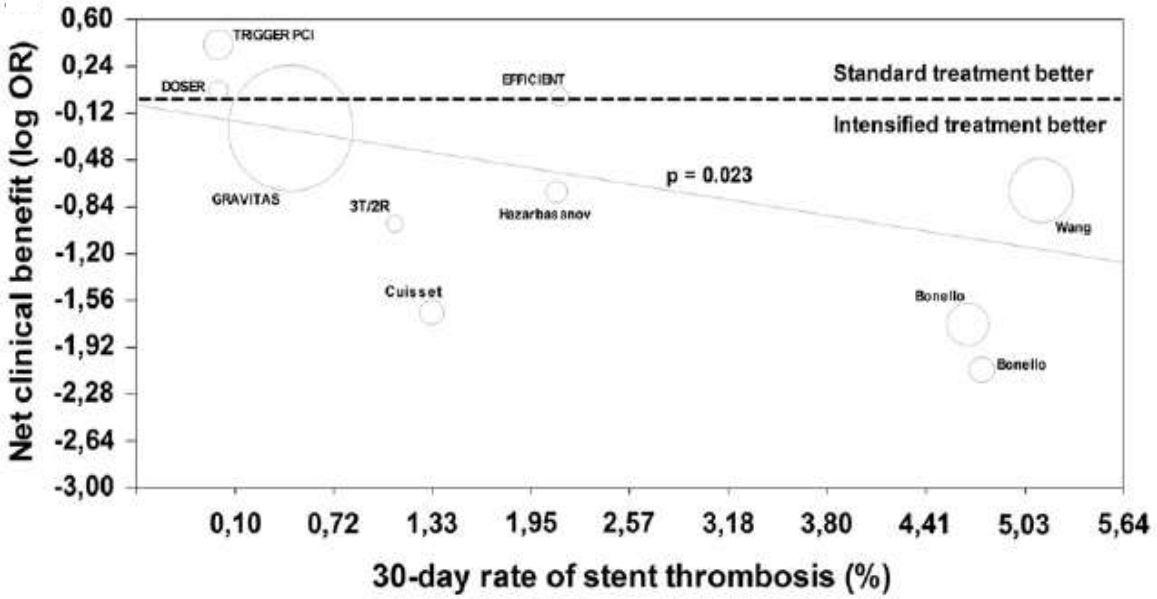
Aradi et el. Int J Cardiol 2013;167:2140-8.

Meta-analysis: Intensified vs. Standard Rx in HPR
Risk of Serious Bleeding & Net Clinical Benefit

Study or Subgroup	Tailored arm Events	Total	Control Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Bonello	3	78	4	84	2.3%	0.80 [0.17, 3.69]
Bonello2	8	215	6	214	4.7%	1.34 [0.46, 3.93]
3T/2R*	1	79	1	91	0.7%	1.15 [0.07, 18.75]
Cuisset	0	74	0	75		Not estimable
GRAVITAS***	133	1109	113	1105	77.0%	1.20 [0.92, 1.56]
Wang	19	150	25	156	13.1%	0.76 [0.40, 1.45]
DOSER	1	36	0	38	0.5%	3.25 [0.13, 82.49]
EFFICIENT	3	47	1	47	1.0%	3.14 [0.31, 31.30]
Hazarbasanov	1	97	0	95	0.5%	2.97 [0.12, 73.79]
TRIGGER PCI	3	212	2	211	1.7%	1.50 [0.25, 9.07]
Total (95% CI)		**2097**		**2116**	**100.0%**	**1.15 [0.91, 1.45]**
Total events	172		152			

Heterogeneity: Tau² = 0.00; Chi² = 3.52, df = 8 (P = 0.90); I² = 0%
Test for overall effect: Z = 1.18 (P = 0.24)





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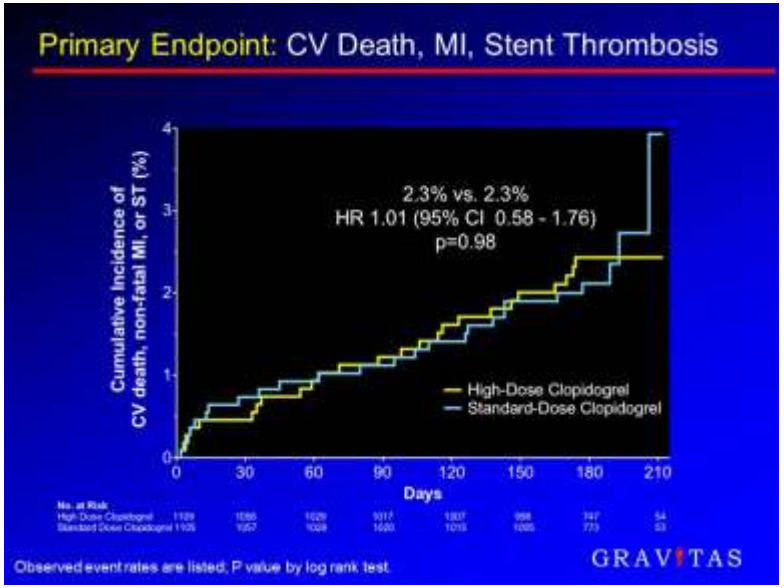
Aradi et el. Int J Cardiol 2013;167:2140-8.

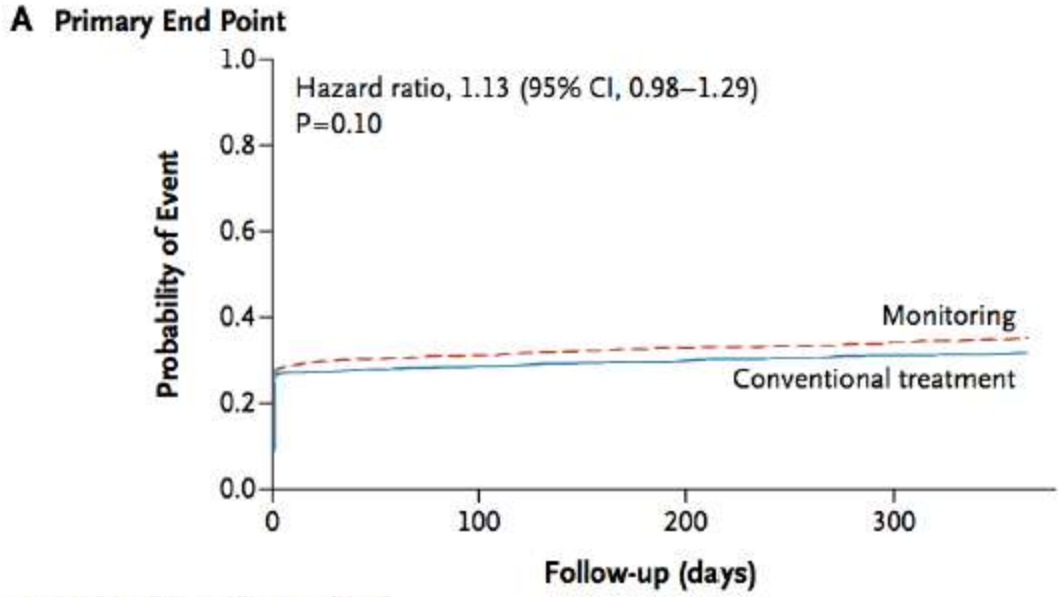
RCTs: GRAVITAS vs. ARCTIC vs. TRIGGER

Potent vs. Standard-intensity APT in HPR Pts



Price MJ, et al. JAMA 2011.

Collet, et al. NEJM 2012.



Summary of primary and secondary CEC-adjudicated efficacy endpoints

	Prasugrel N=212	Clopidogrel N=211	p HR (95% CI)
Days on study treatment(median)	174	174	-
Primary composite efficacy EP:			
CV death or MI	0	1 (0.5%)	-
Key secondary efficacy EPs:			
MI	0	1 (0.5%)	-
Rehospitalization for cardiac ischemic event	2 (0.9%)	4 (1.9%)	0.992 0.99 (0.14-7.03)
Urgent TVR	2 (0.9%)	1 (0.5%)	-
Definite ST	0	0	-
Stroke	0	1 (0.5%)	-
CV death	0	0	-
All cause death	0	1 (0.5%)	-

Trenk, et al. JACC 2012.

HUNGARY: SELECTIVE REIMBURSEMENT FOR PRASUGREL

MAGYAR KÖZLÖNY

89. szám

A MAGYAR KÖZTÁRSASÁG HIVATALOS LAPJA

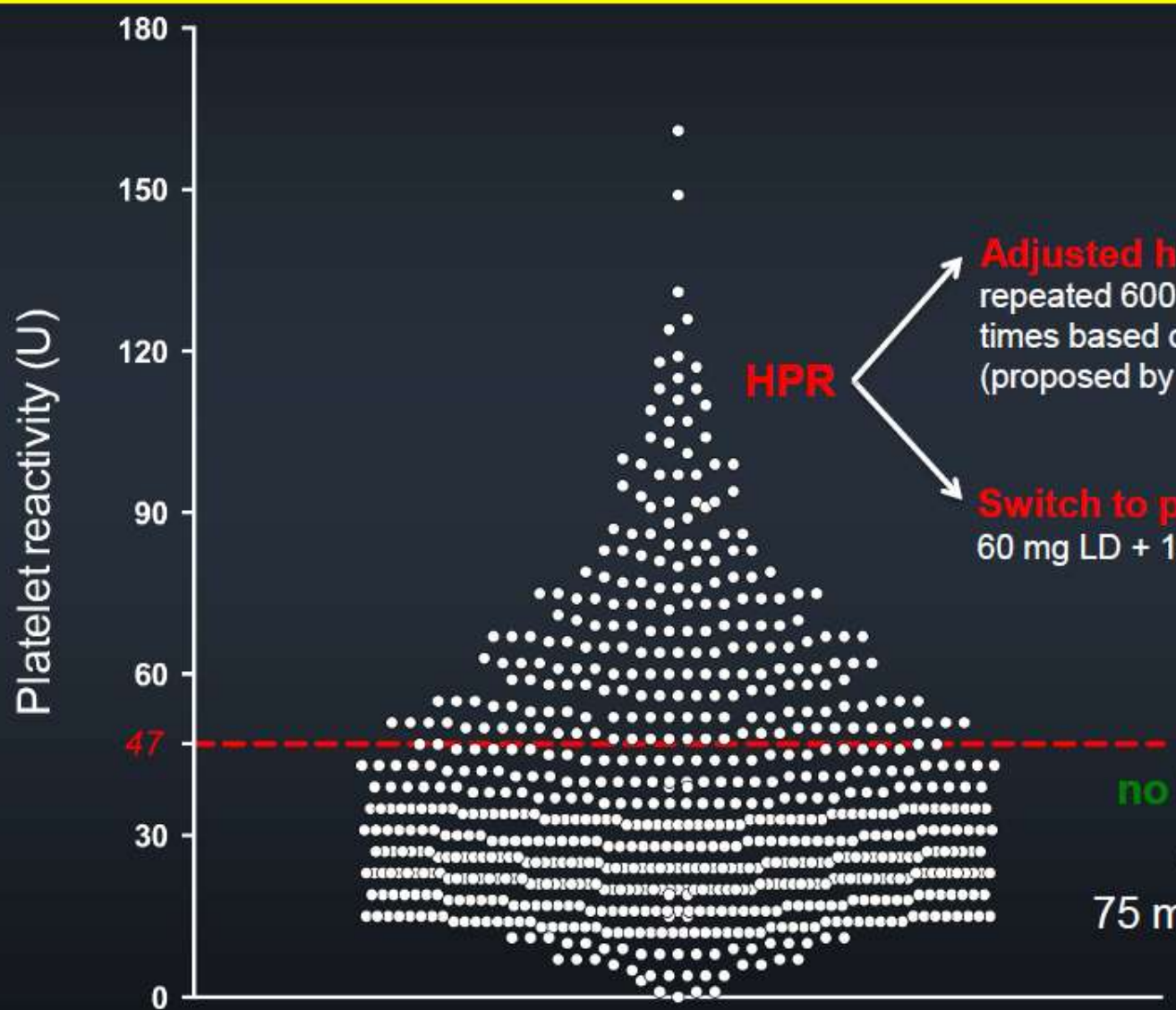
2011. július 27., szerda

1st September 2011.:

„Acute coronary syndromes patients with either diabetes mellitus or troponin positivity who undergo PCI with stenting and have no prior TIA/stroke in history can receive 70% reimbursement for prasugrel treatment for one year *IF PLATELET FUNCTION TESTING SHOWS HIGH ON-TREATMENT PLATELET REACTIVITY AFTER CLOPIDOGREL.”*

(At the time of this presentation, ticagrelor is not yet reimbursed in Hungary)

MULTIPLATE RESULTS:
PLATELET REACTIVITY AFTER PCI (n=741)



HPR

Adjusted high-dose clopidogrel:
repeated 600 mg clopidogrel LD up to 4 times based on PFT + 75/150 mg MD (proposed by Bonello et al.*)

Switch to prasugrel
60 mg LD + 10 mg MD

no HPR

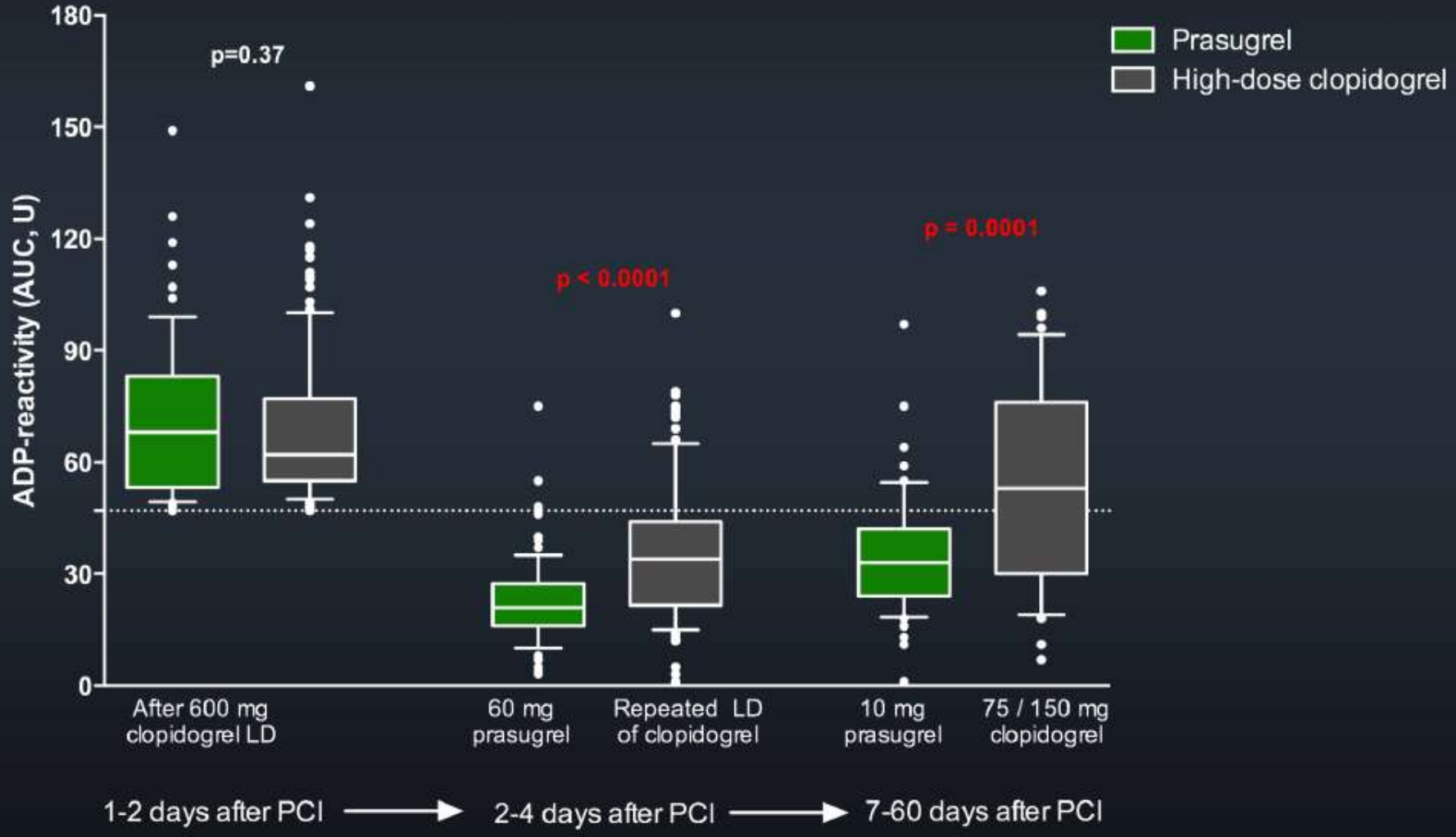
↓

75 mg generic clopidogrel

Aradi et al. JACC 2014. in press.

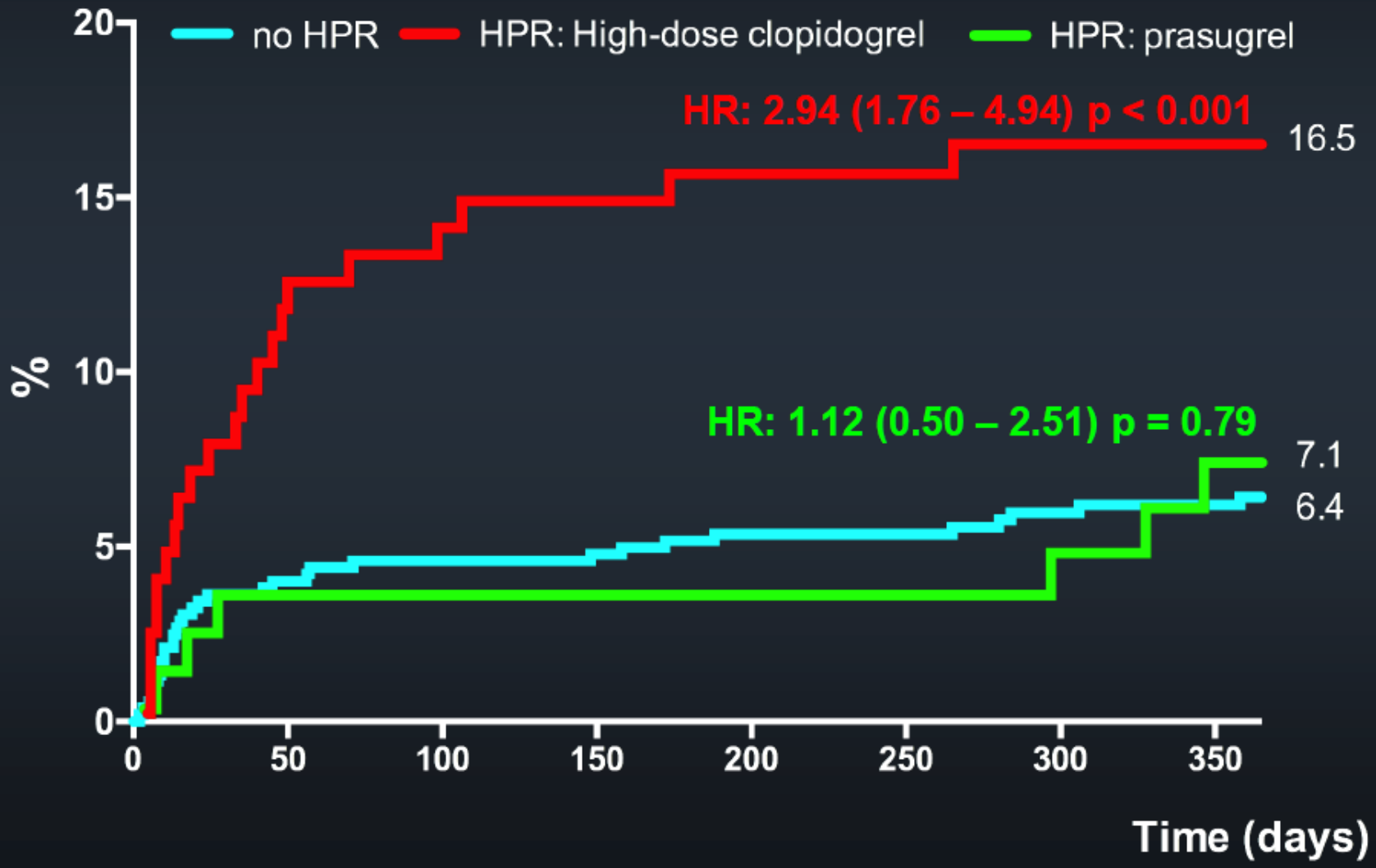
*: Bonello et al. JACC 2008;51:1404-11.

MULTIPLATE RESULTS:
PRASUGREL vs. HIGH-DOSE CLOPIDOGREL



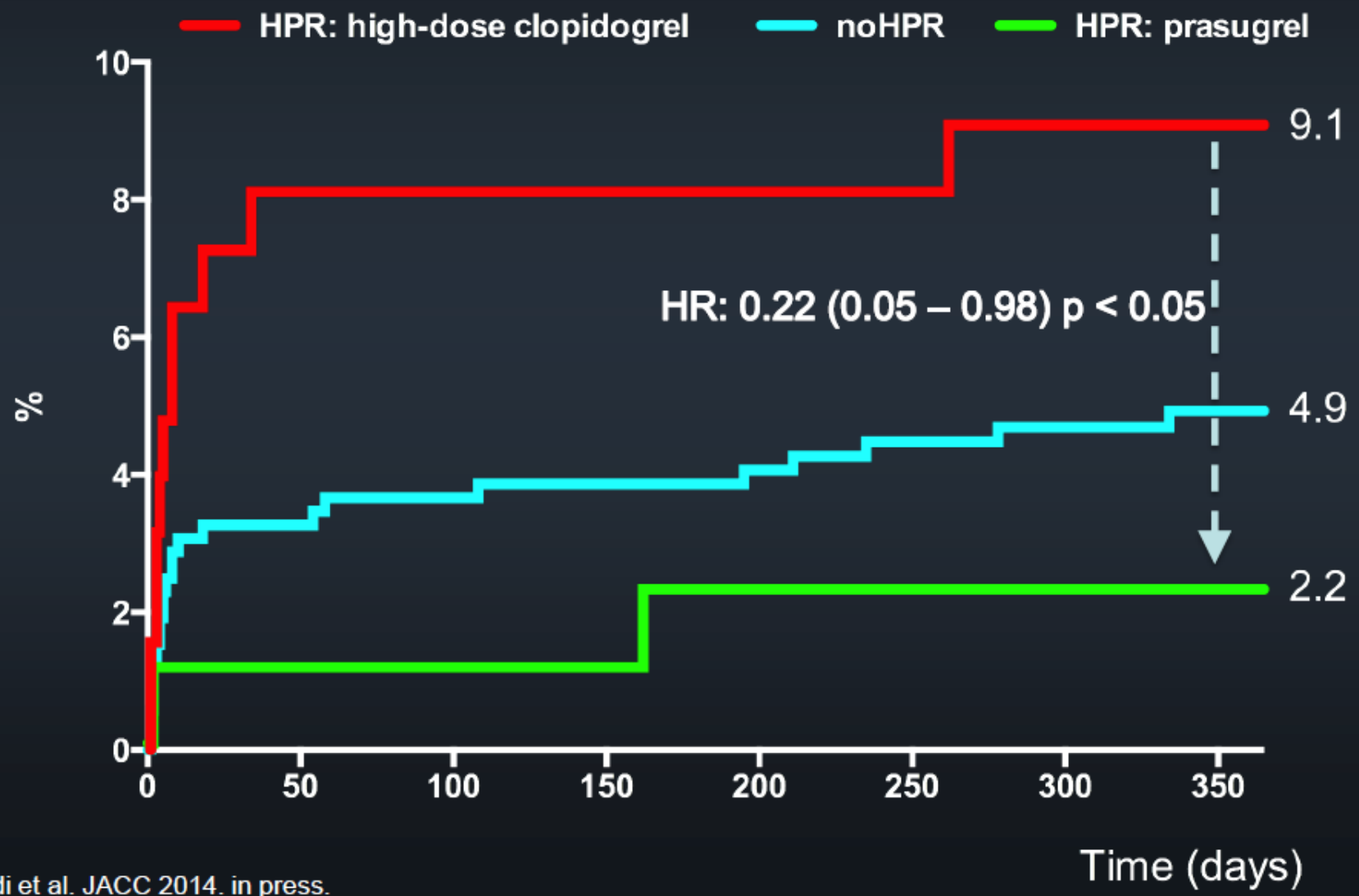
Aradi et al. JACC 2014. in press.

CLINICAL RESULTS:
MORTALITY AND STENT THROMBOSIS



Aradi et al. JACC 2014. in press.

CLINICAL RESULTS:
MAJOR BLEEDING (BARC 3, 5)



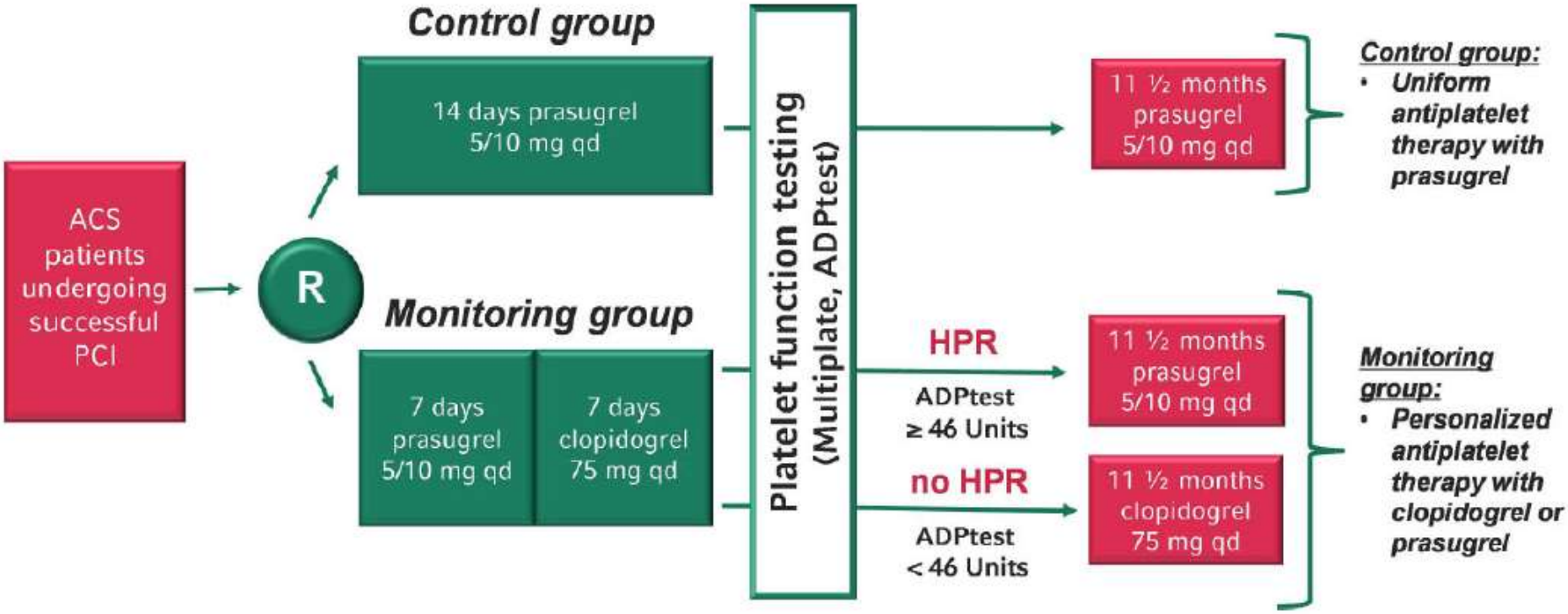
Aradi et al. JACC 2014. in press.

Differences Between Studies

	GRAVITAS	ARCTIC	TRIGGER PCI	PÉCS REGISTRY
n (study population)	2,214	2,440	423	741
Patient risk profile				
AMI (%)	10%	27%	0%	84%
STEMI (%)	0.4%	0%	0%	48%
Shock (%)	0%	0%	0%	4.5%
All-cause mortality	0.8%	2%	0%	8.2%
Intervention				
High-dose clopidogrel	100%	80%	-	58%
High-dose ASA	-	45%	-	-
Prasugrel	-	12%	100%	42%
PFT Assay	VerifyNow	VerifyNow	VerifyNow	Multiplate
Results				
1° Endpoint	2.3% vs. 2.3%	31.1% vs. 34.6%	0.0% vs. 0.5%	***16.5% vs. 7.1%*** **

(mostly PMI)

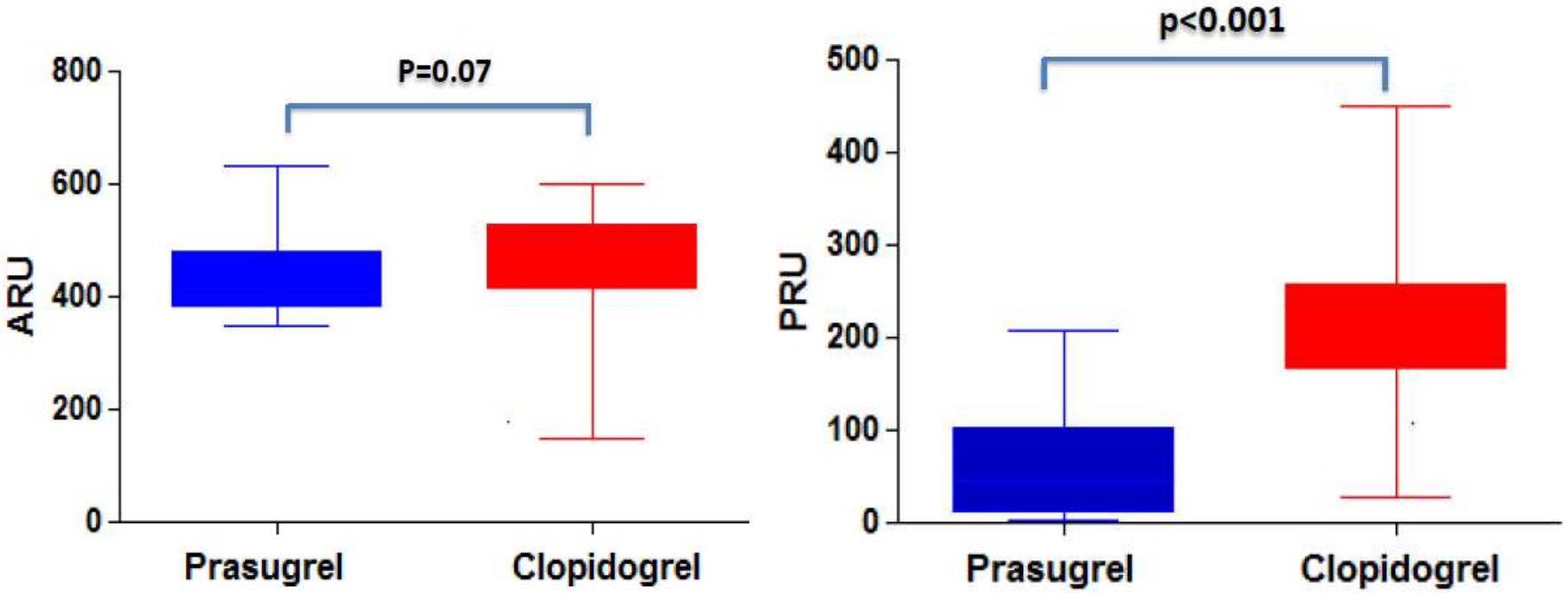
TROPICAL-ACS Trial (n = 2600)



Primary EP: Composite of CV death, MI, stroke and bleeding at 12 mo.

Peri-Procedural MI in Stable CAD

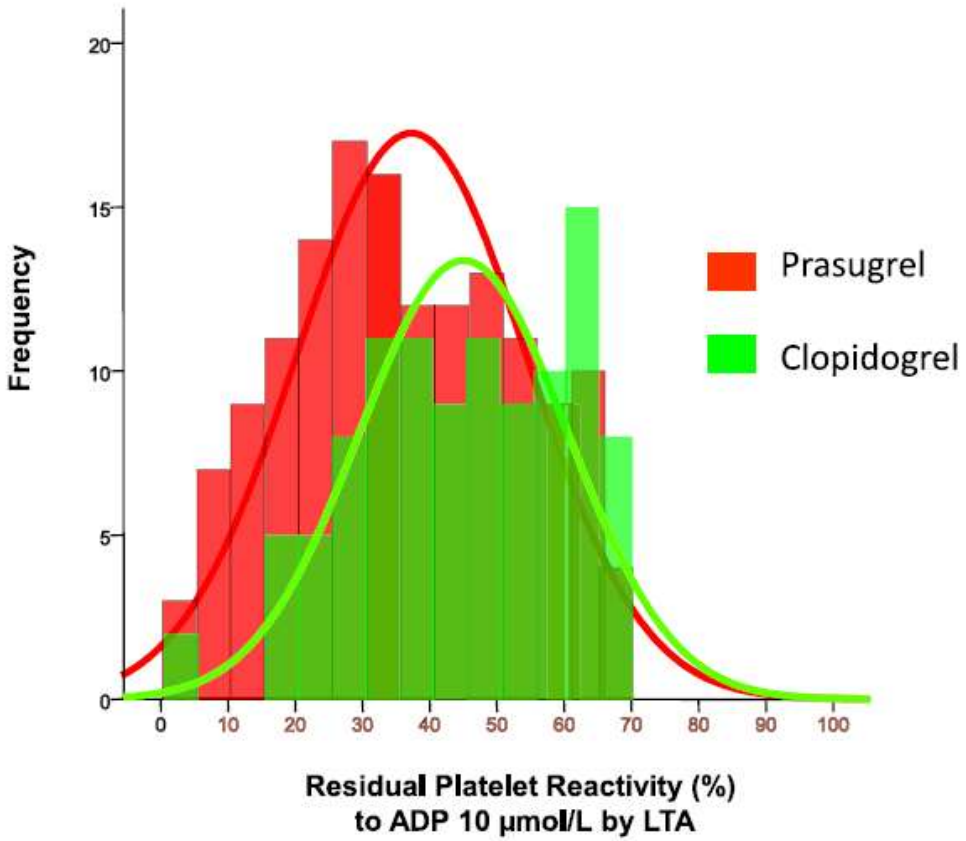
60 mg Prasugrel vs. 600 mg Clopidogrel LD

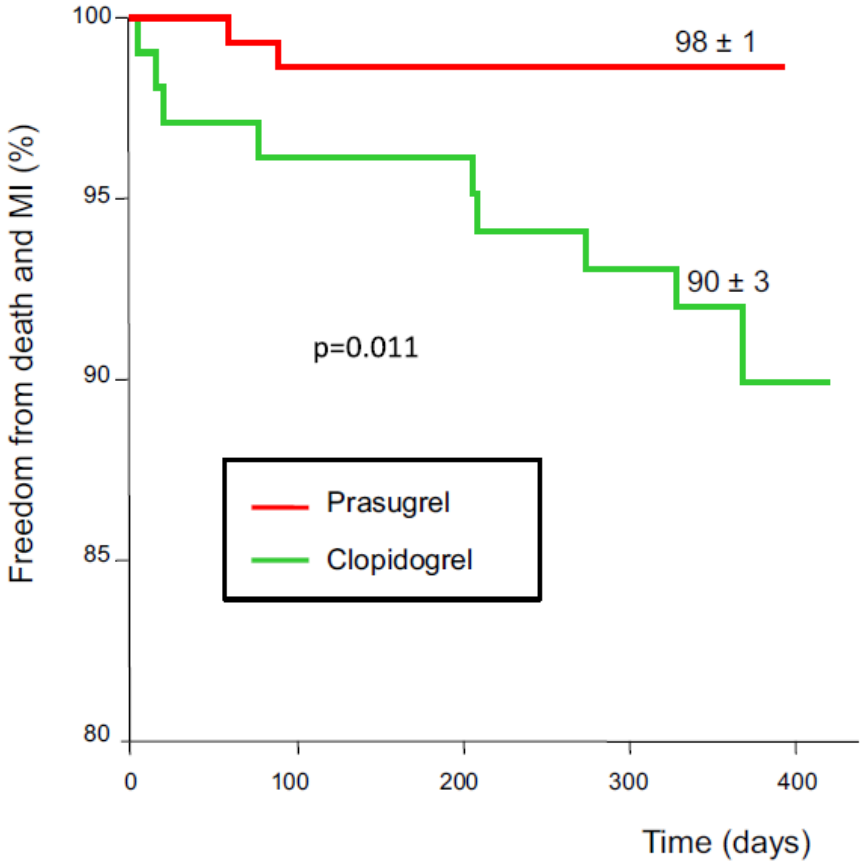


PMI (> TnI x3): prasugrel 23% vs. clopidogrel 44%, p = 0.035

Hamilos M et al. *ESC.* 2012.

Prasugrel vs. Clopidogrel Therapy After EES Stenting in Unprotected LMCAD





Lesion or PCI complexity ("vulnerable vessel") in stable CAD: "Different level of platelet inhibition"

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Migliorini A, et al. *Am J Cardiol.* 2013;112:1843-8.

Specified Optimal APT Regimen:

"Races" May be The Major Determinant

- **Each race has …**
  - ***1. different PK and PD profiles of CV drugs***
  - ***2. different level of hypercoagulability***

VS.

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Jeong YH, et al. *NEJM 2013: Lancet* 2012;380:725.: *JAMA* 2011;305:2520.: JACC 2012; *Am Heart J.* 2011;162:e19-20.

PK and PD Profiles Between East Asians vs. Westerners

	Clopidogrel	Prasugrel	Ticagrelor
PK & PDs	↓ 20-30%	↑ 30% (after BW adjustment)	↑ 20% (after BW adjustment)
Cause	CYP2C19 genotype	?	?

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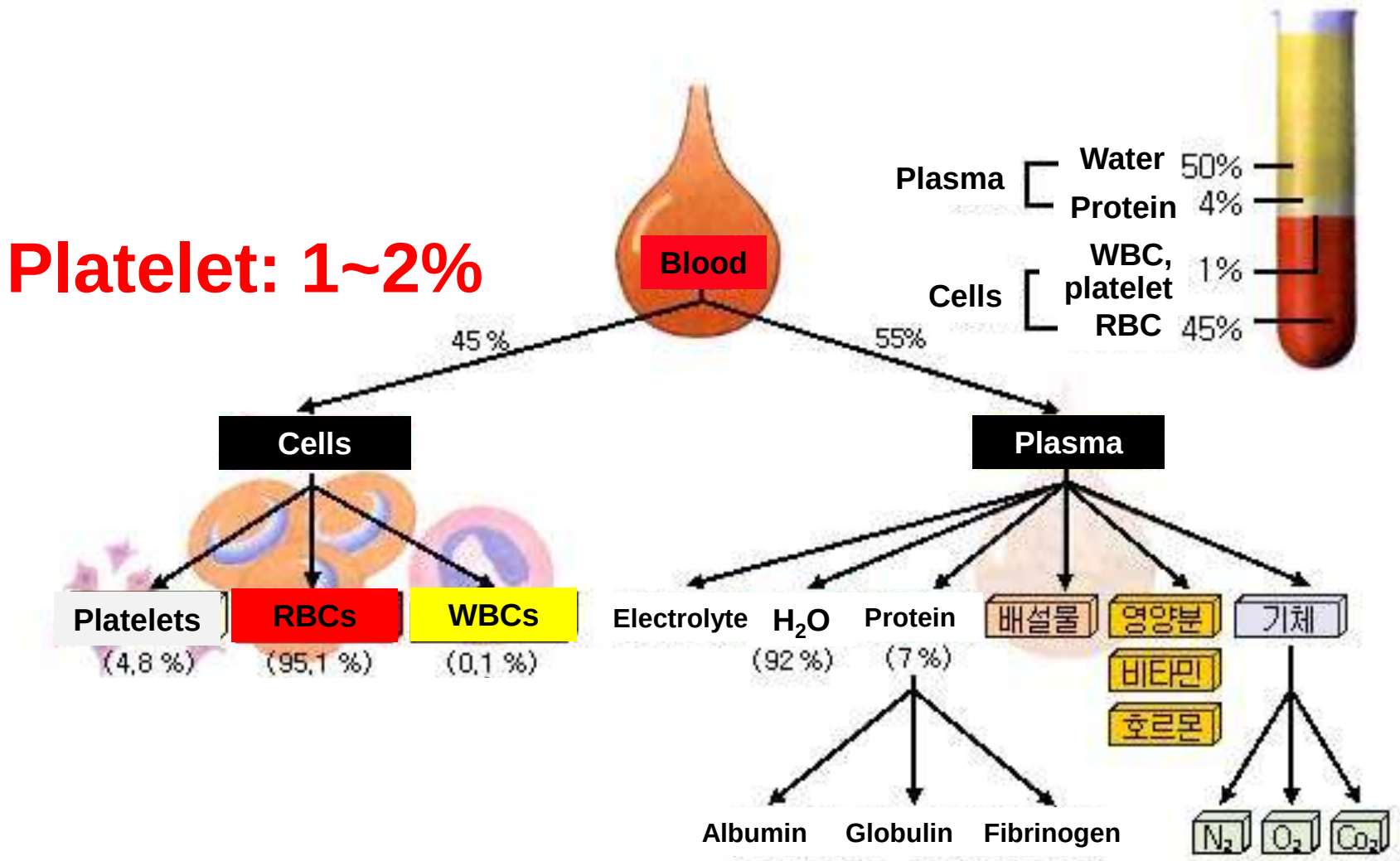
Jeong YH, et al. *NEJM 2013: Lancet* 2012;380:725.: *JAMA* 2011;305:2520.: JACC 2012; *Am Heart J.* 2011;162:e19-20.

“My Blood” is Somewhat *Sticky…*

Blood Component



Hemostatic & Endothelial Markers

MESA study (US citizen: men cohort)

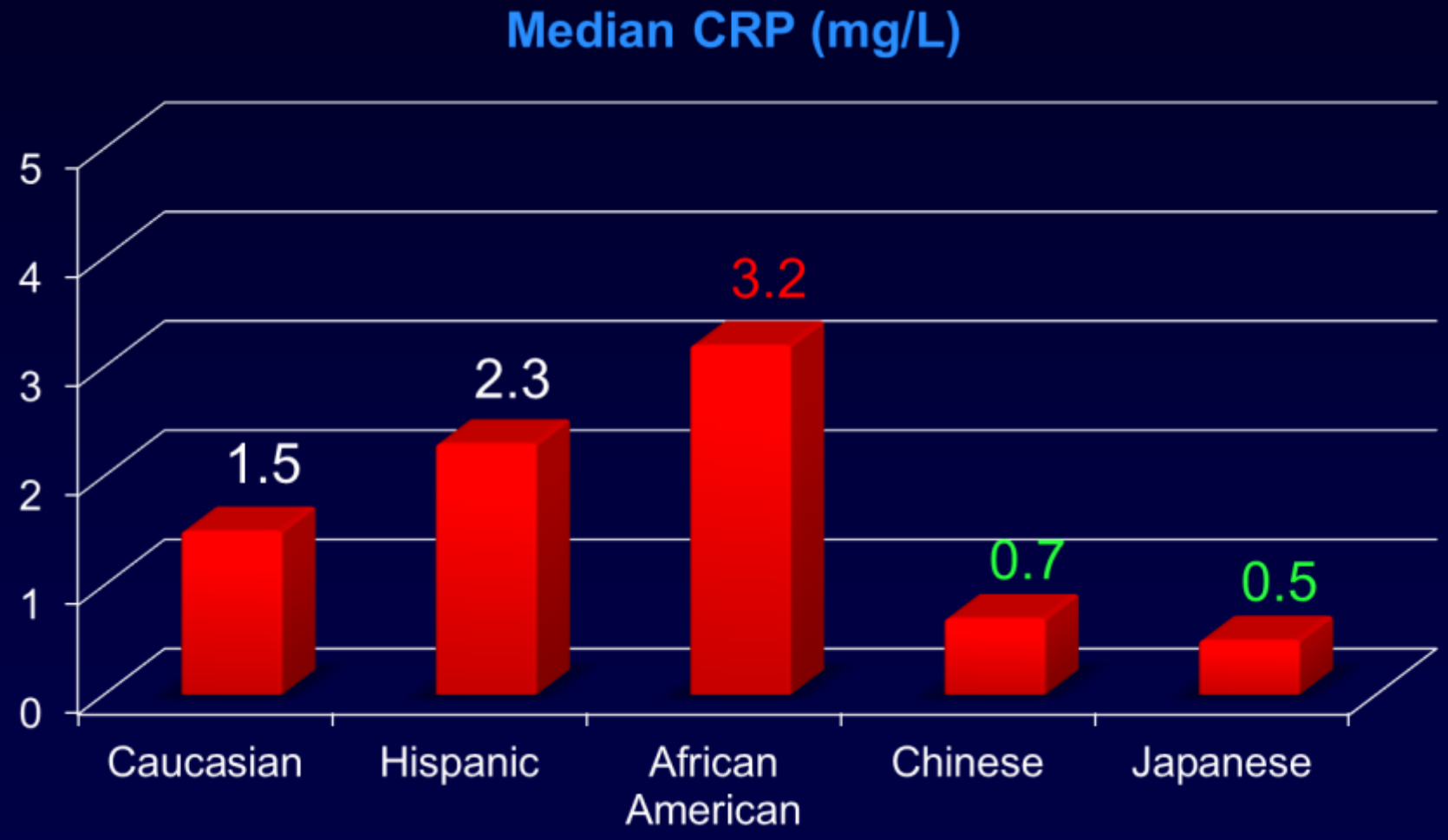
	Caucasian (n = 2599)	Hispanic (n = 1864)	Black (n = 1481)	Chinese (n = 803)
Fibrinogen (mg/dL)	329	344	334	317
Factor VIII (%)	153	150	172	153
D-dimer (ug/mL)	0.20	0.20	0.23	0.15
PAI-1 (ng/mL)	20.4	20.1	14.2	18.4
vWF (%)	136	140	152	144
ICAM-1 (ng/mL)	285	282	252	233
E-selectin (ng/mL)	57.0	56.9	61.8	50.8

* Adjusted for age, education, individual income, and site.

Lutsey et al. *J Thromb Haemost* 2006; 4: 2629–35.

Ethnic Difference in CRP level

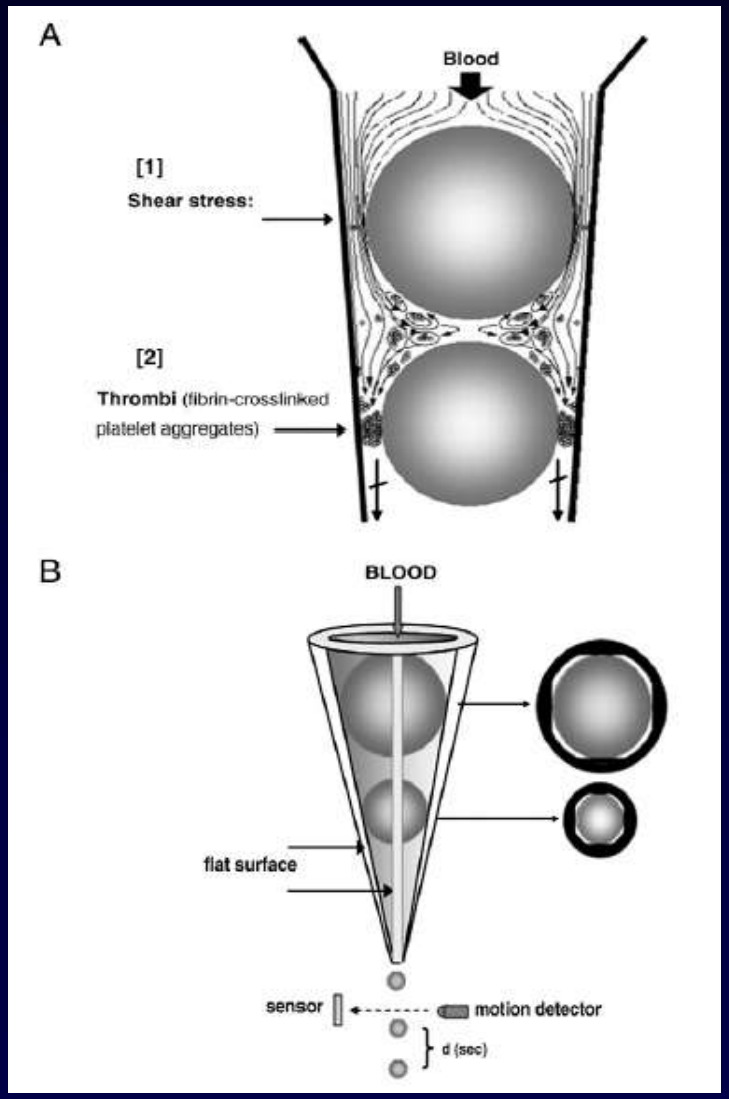
A cross-sectional analysis of 3154 women, without known CVD and hormone therapy (SWAN study)



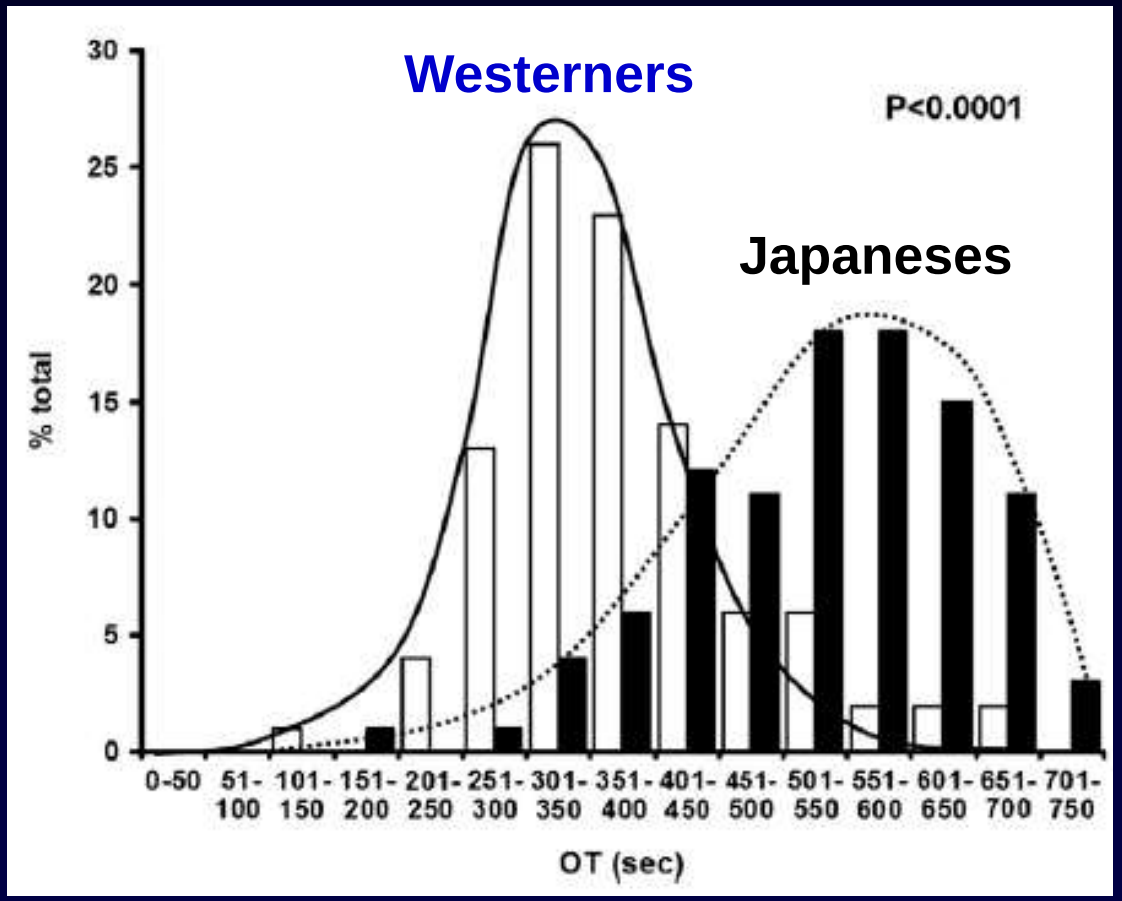
Kelley-Hedgepeth et al. *Clin Chem*. 2008;54:1027-37.

Comparison of Platelet-Fibrin Clot Strength: Japanese vs. Western Volunteers

Global Thrombosis Test



Occlusion Time (sec) in healthy subjects

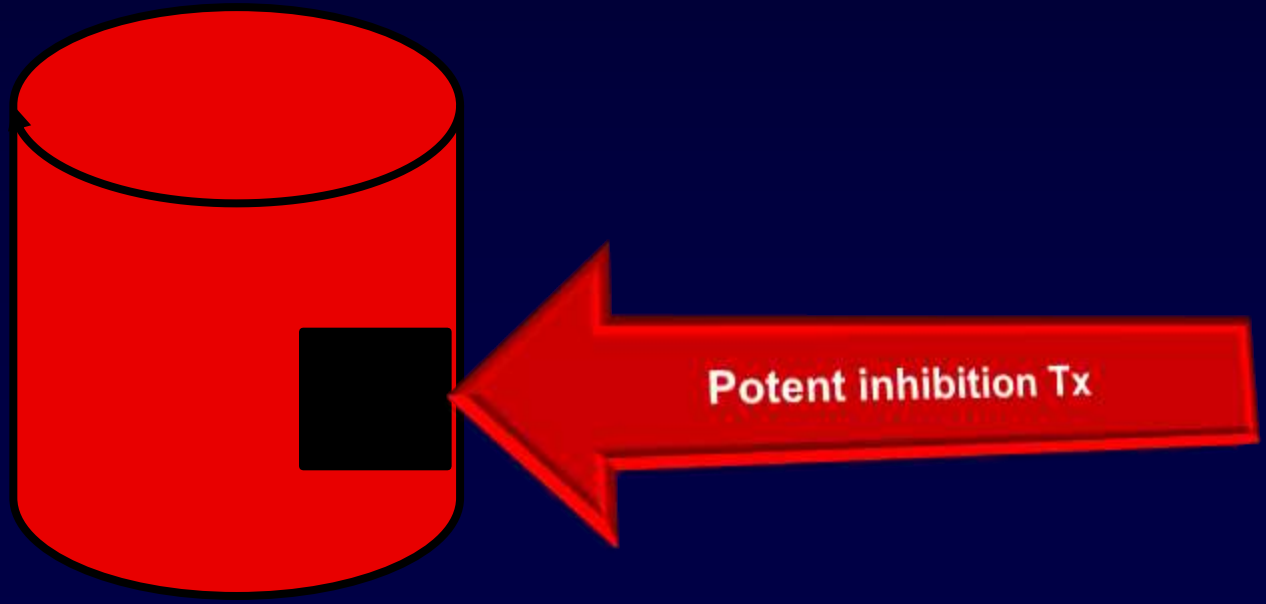


Gorog DA, et al. Int J Cardiol. 2011;152:43-8.

Paradigm Shift to Thrombogenecity: Clinical Outcomes and Treatment

↓ Thrombogenecity:
↓ Thrombosis &
↑ Bleeding
(East Asians, Stable AP)

↑ Thrombogenecity: ↑
Thrombosis &
↓ Bleeding
(Westerner, DM, ACS)



Jeong YH, et al. *NEJM* 2013: *Lancet* 2012;380:725.: *JAMA* 2011;305:2520.: *AHJ* 2011;162:e19-20.

Relationship between VerifyNow and Post-PCI Outcome

Korea: ROC curve analysis for HPR (total n = 3,844)

Study	Cohort	EP	Cutoff
ACCEL-LOADING-ACS (Randomized)[1]	NSTE-ACS (n=218); emergent PCI	1-mo MACE	**PRU ≥ 288** **% inhbition ≤ 12%**
Zhang et al. (Registry)[2]	NSTE-ACS (n=228); emergent PCI	1-mo MACE	**PRU > 272**
Ko et al. (Registry)[3]	All comer (n=222); PCI	1-mo MACE	**PRU ≥ 275**
CILON-T (Randomized)[4]	All comer (n=960); DES implantation	6-mo MACE	**PRU ≥ 252.5**
Ahn et al. (Registry)[5]	All comer (n=1226); stenting	12-mo MACE	**Non-AMI: no cutoff** **AMI: PRU ≥ 272**

Different cutoff of HPR between races

PRU: Western (208~235) vs. Korean (253~289)

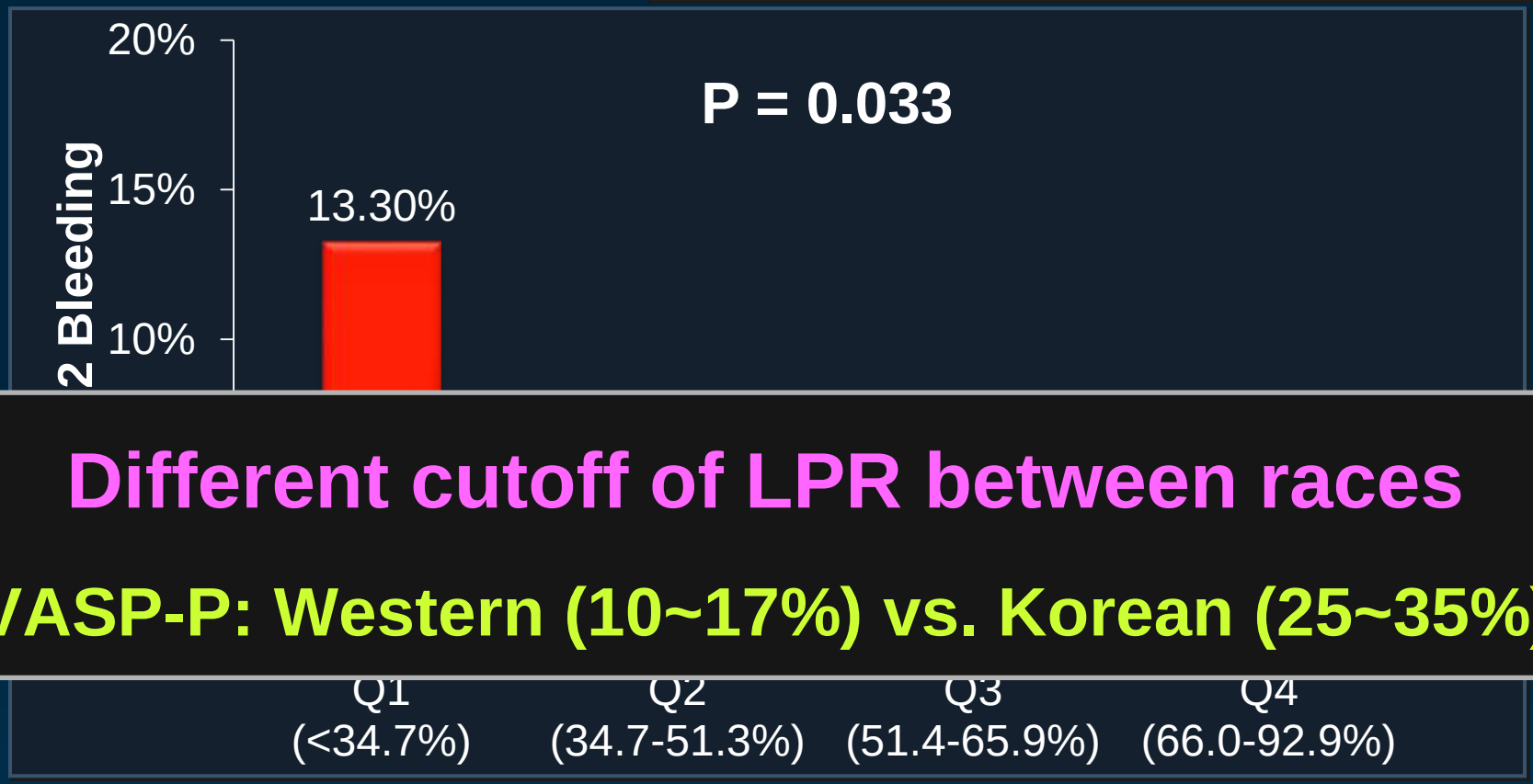
[1]Jeong YH, et al. *TCTAP 2012* LBCT; [2]Zhang HZ, et al. Platelets 2013; [3]Ko YG, et al. *Am Heart J.* 2011;161:383.; [4]Suh JW, et al. *JACC.* 2011;57:280.; [5]Ahn SG, et al. *JACC Cardio Interv* 2012;5:259.; [6]Park KW, et al. *Am J Cardiol.* 2011;108:1556.; [2]Jin HY, et al. *Int J Cardiol* 2013;168:207..

Incidence of BARC Bleeds in PCI Korean Pts

ACCEL-BLEED. Jeong YH. Featured Clinical Trial. TCT 2011.

Post-discharge 1-month F/U (n = 301)

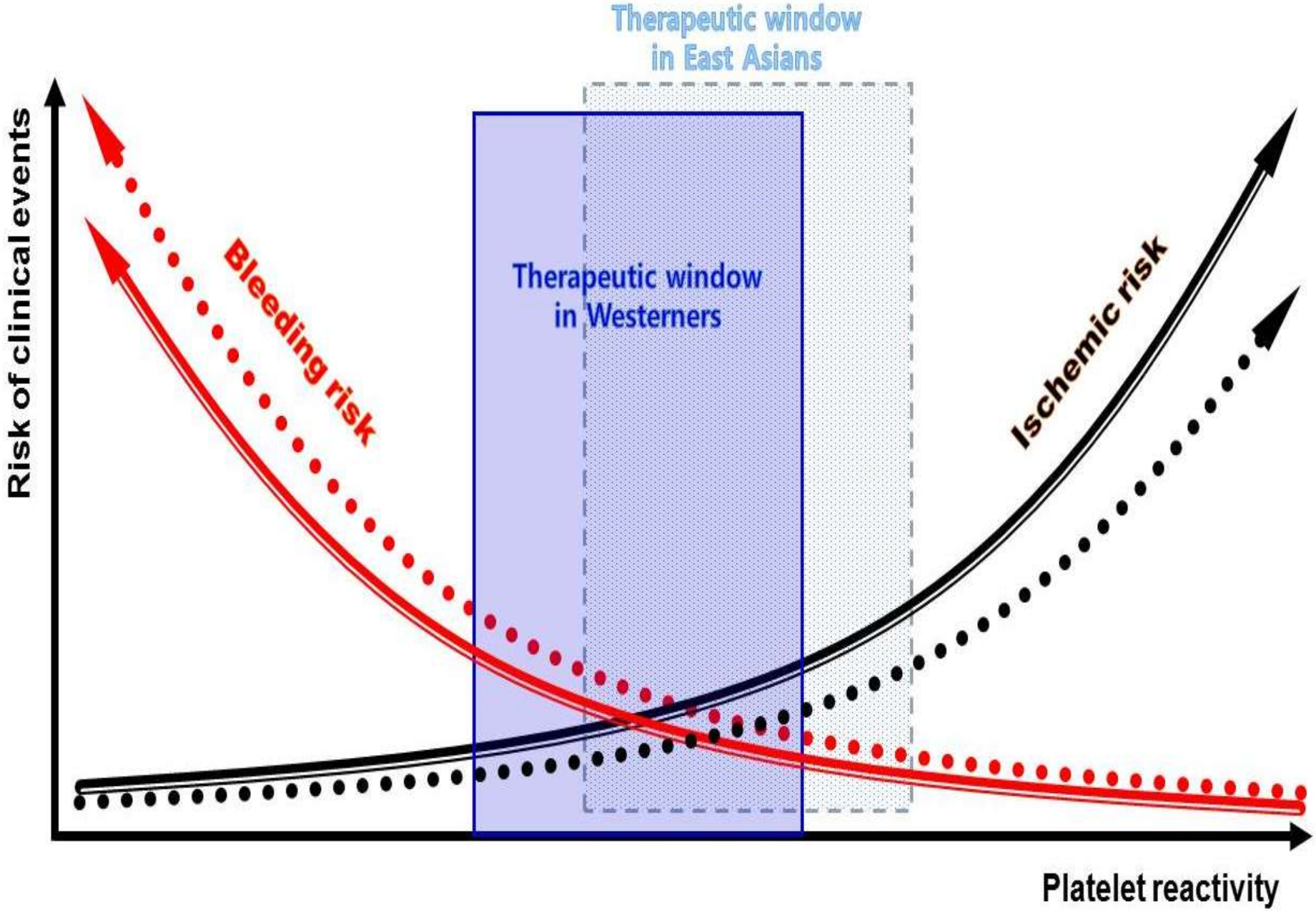
BleedScore™	
Superficial (BARC 1)	67 (22.3%)
Internal (BARC 2)	21 (7.0%)
Alarming	0 (0%)



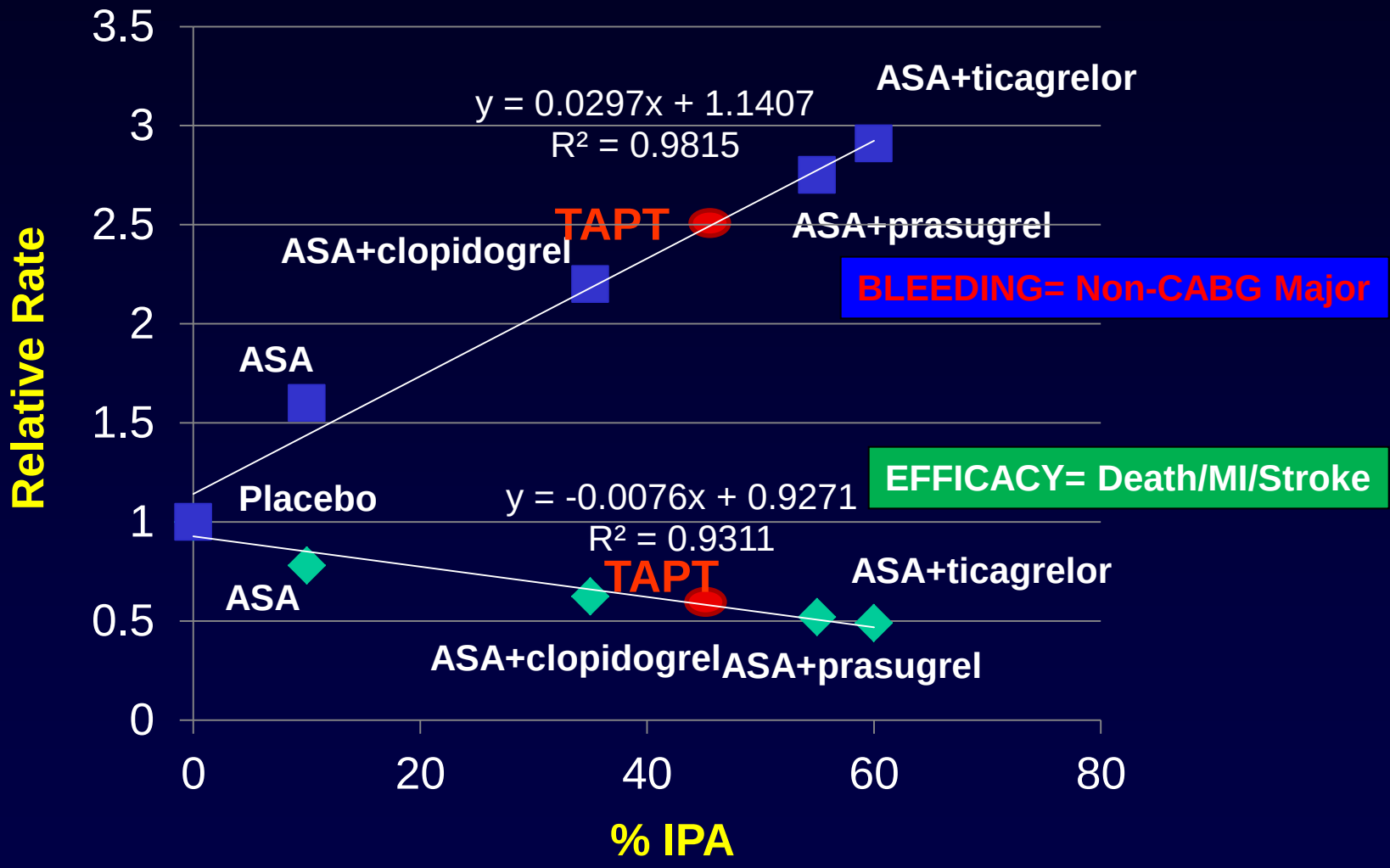
Different cutoff of LPR between races

VASP-P: Western (10~17%) vs. Korean (25~35%)

Therapeutic Window of $P2Y_{12}$ Inhibitor



Efficacy and Safety Correlated with IPA

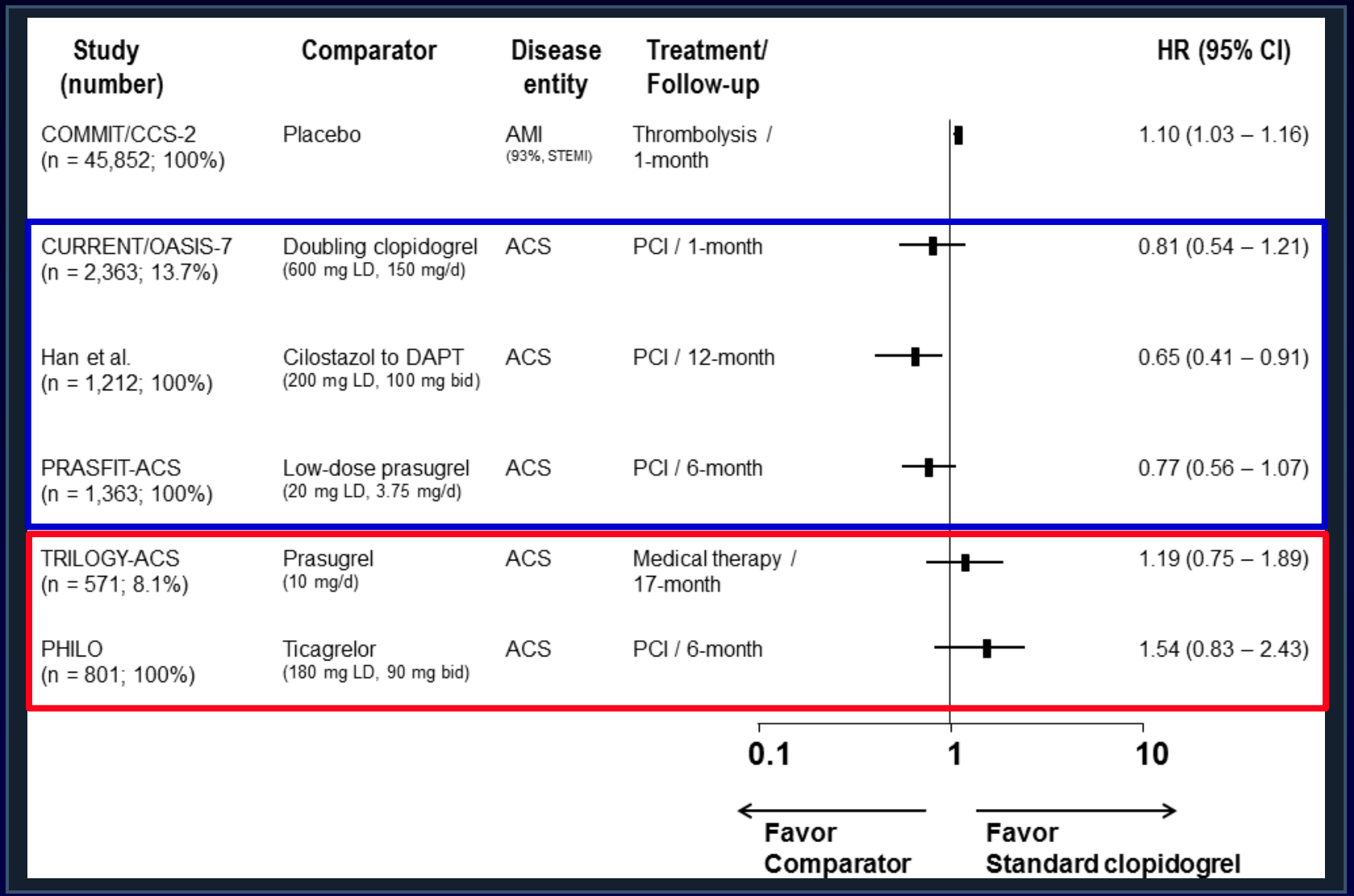


Antithrombotic Trialists' Collaboration. *BMJ*. 2002;324:71
Yusuf et al. *N Engl J Med.* 2001;345:494
Wiviott et al. *N Engl J Med* 2007;357:2001-2015
Wallentin et al. N Engl J Med 2009;361:1-13

*IPA = inhibition of platelet aggregation

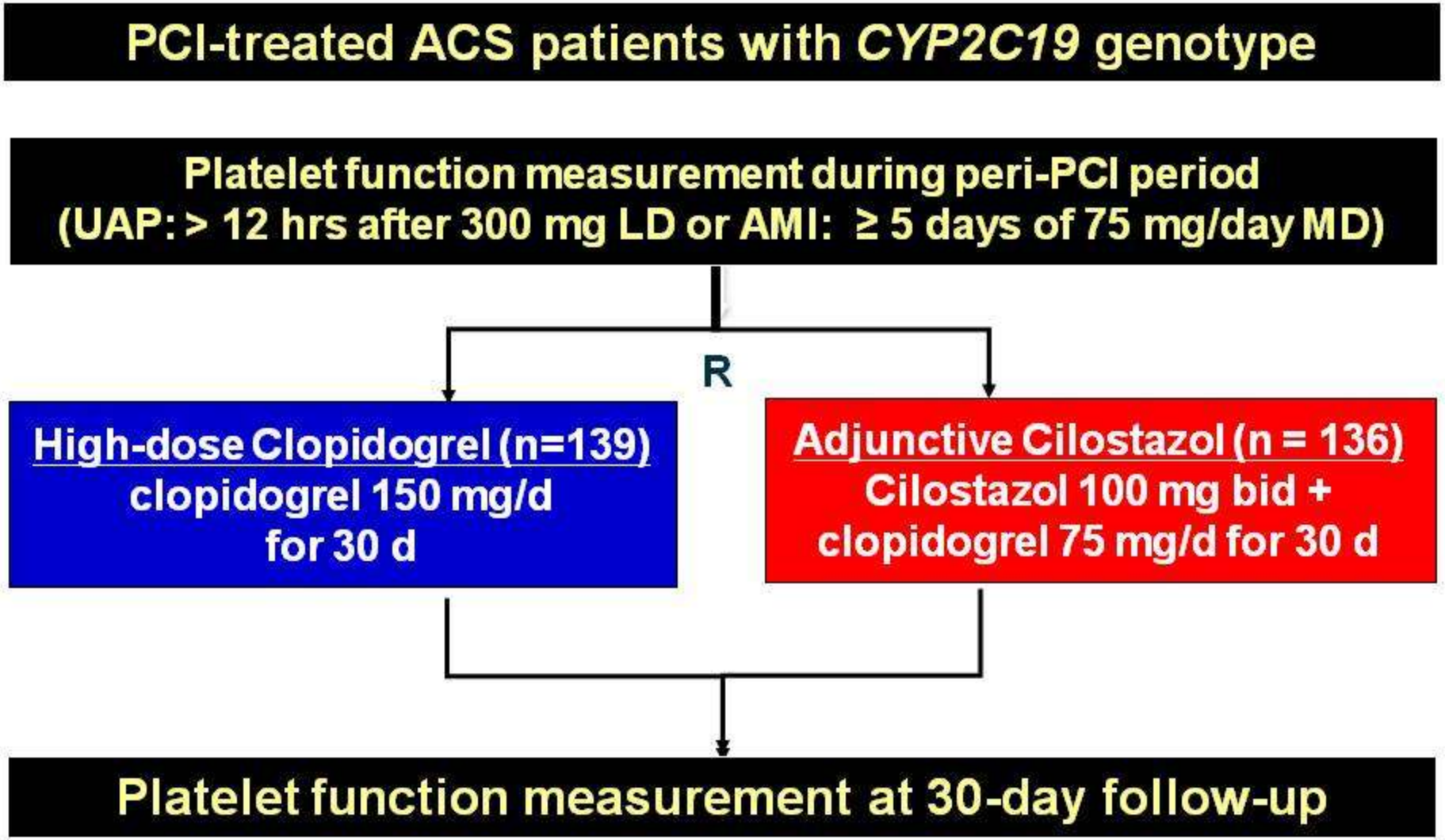
RCTs: Comparator vs. Standard-dose Clopidogrel

East Asian ACS Patients



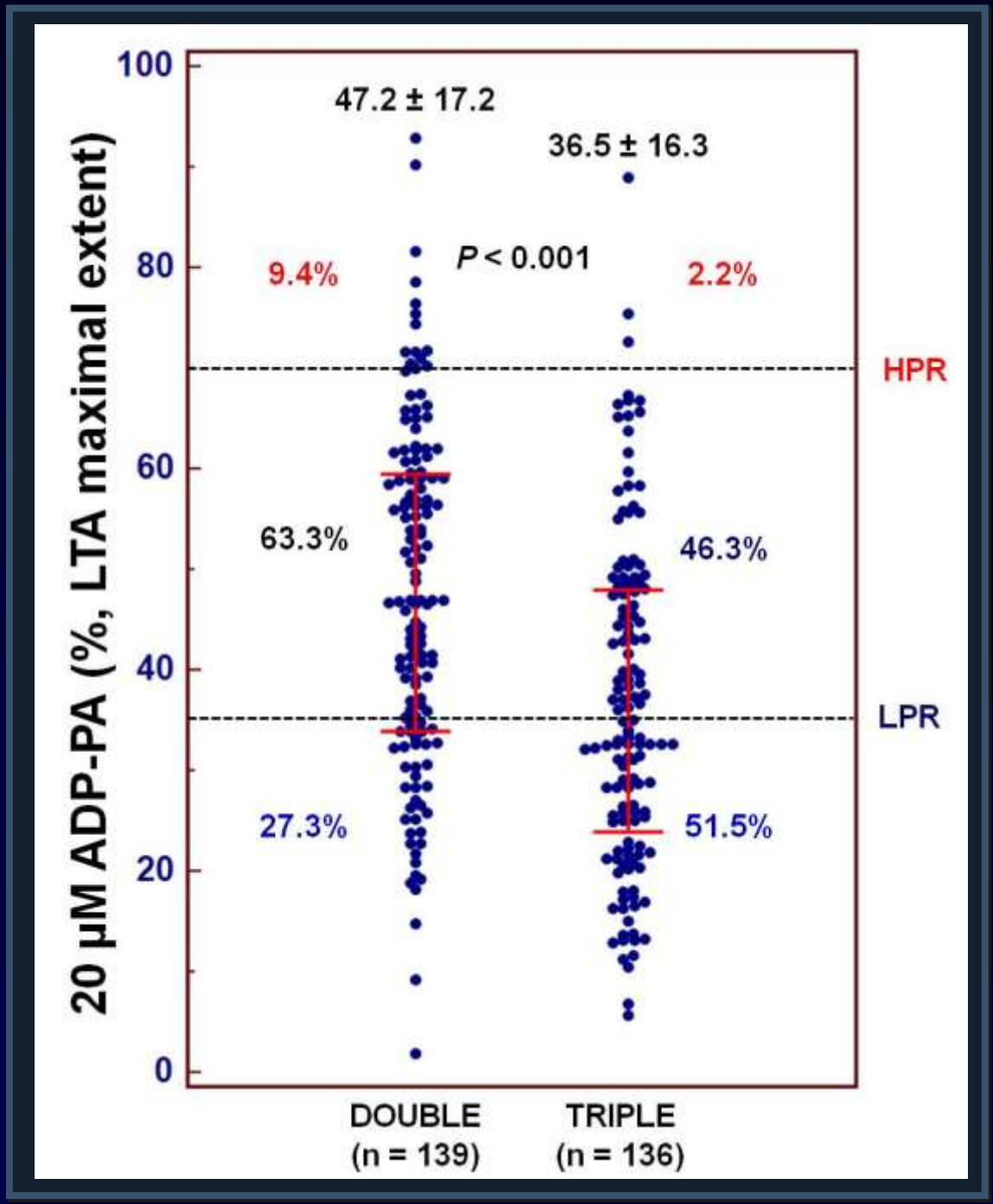
Jeong YH. *Curr Cardiol Report* 2014.

ACCEL Trials

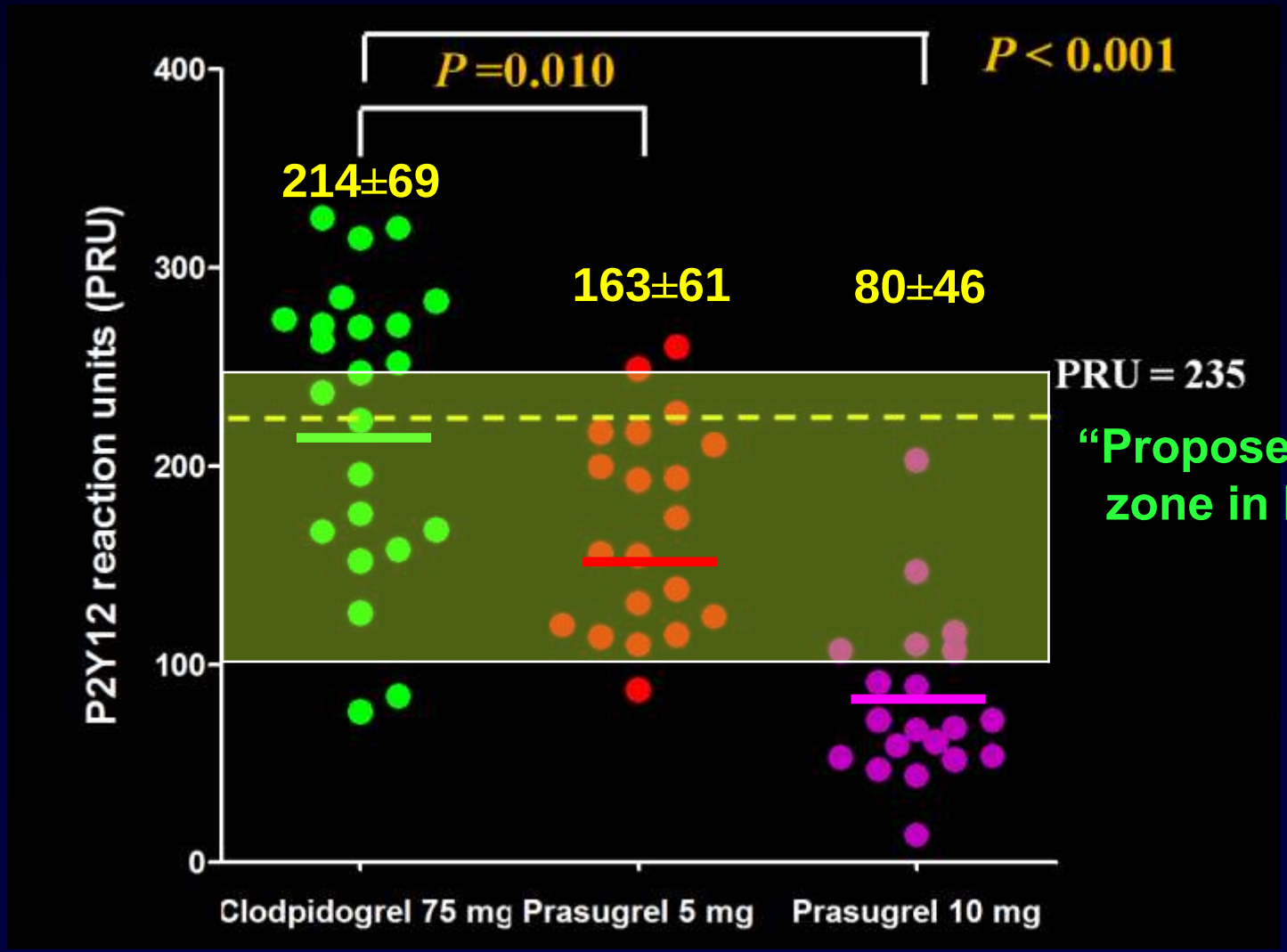


Jeong et al. J Am Coll Cardiol. 2009;53:1101-9.: Jeong et al. Circ Cardiovasc Interv. 2010;3:17-26.: Jeong et al. JACC Cardiovasc Interv. 2010;3:731-41.: Hwang et al. Circ Cardiovasc Interv. 2010;3:450-9.: Jeong et al. Thromb Haemost. 2010;104:1286-9.: Kim et al. JACC Cardiovasc Interv. 2011;4:381-91.: Kim et al. Br J Clin Pharmacol. 2012;73:629-40.

Double vs. TAPT: PR Level & Prevalence of HPR/LPR



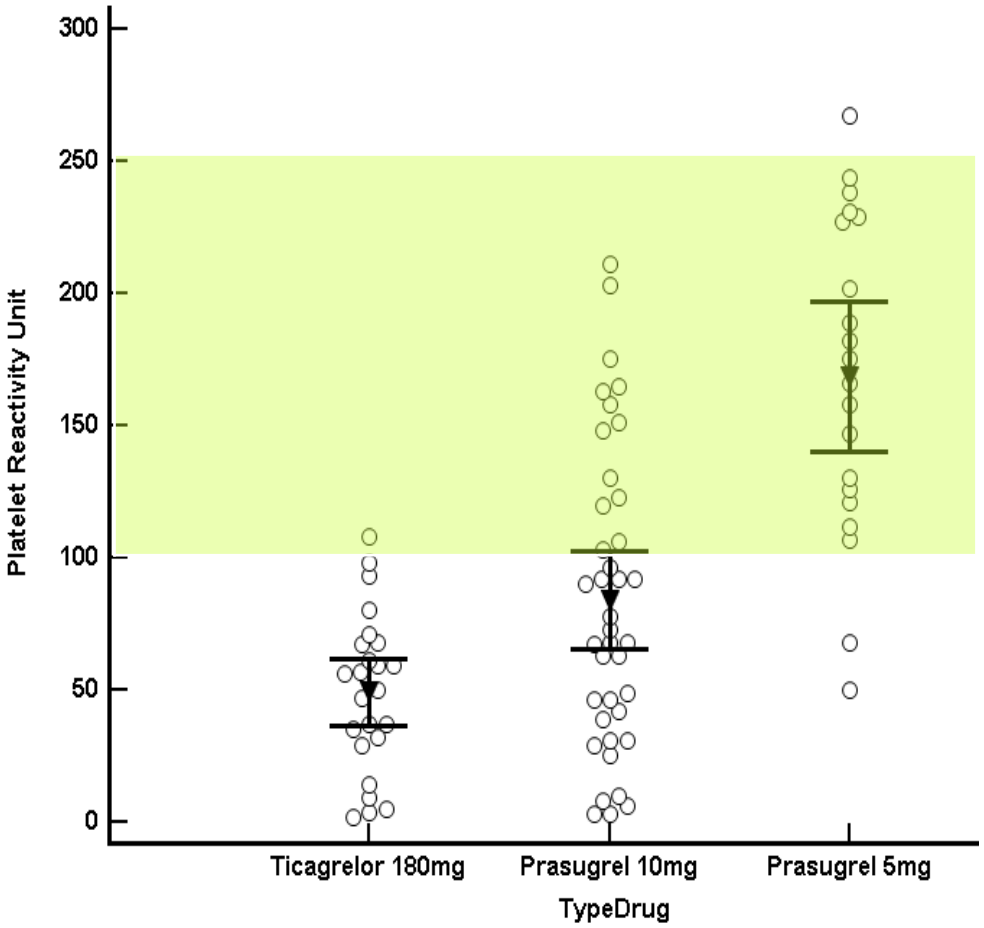
Platelet Inhibition of Prasugrel (5 vs. 10 mg) vs. Clopidogrel (75 mg) in Korean Patients

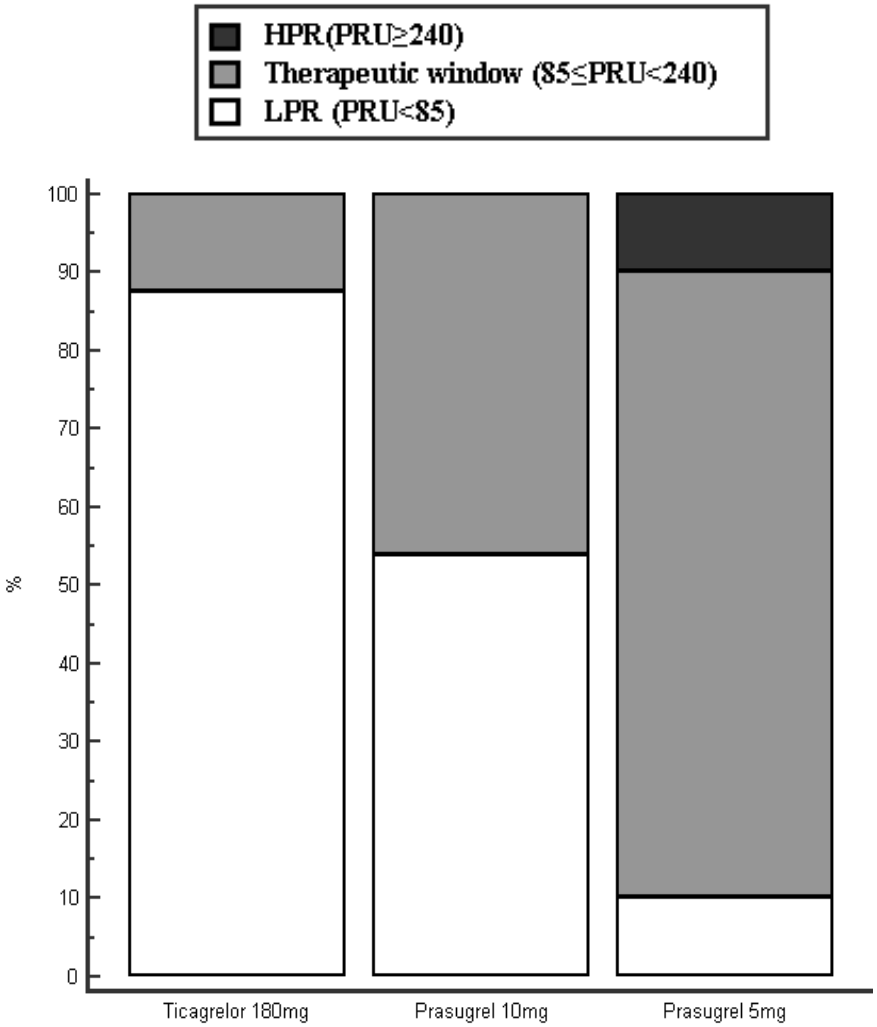


"Proposed Therapeutic zone in East Asians"

Jin HY, et al. Korean Heart Autumn Symposium 2012

PD Profiles of Potent $P2Y_{12}$ Inhibitors in Korean ACS Patients





GYEONGSANG NATIONAL UNIVERSITY HOSPITAL

Ahn SG, et al. Platelets 2014:in submission.

Study Design

PRASFIT ACS

ACS (STEMI, NSTEMI, UA) patients undergoing PCI

N=1,363

Randomized

Prasugrel	**Clopidogrel**
20 mg LD/ 3.75 mg MD	**300 mg LD/ 75 mg MD**

Treatment duration: 24 to 48 weeks
(Combination with aspirin)

LD: Loading Dose
MD: Maintenance Dose

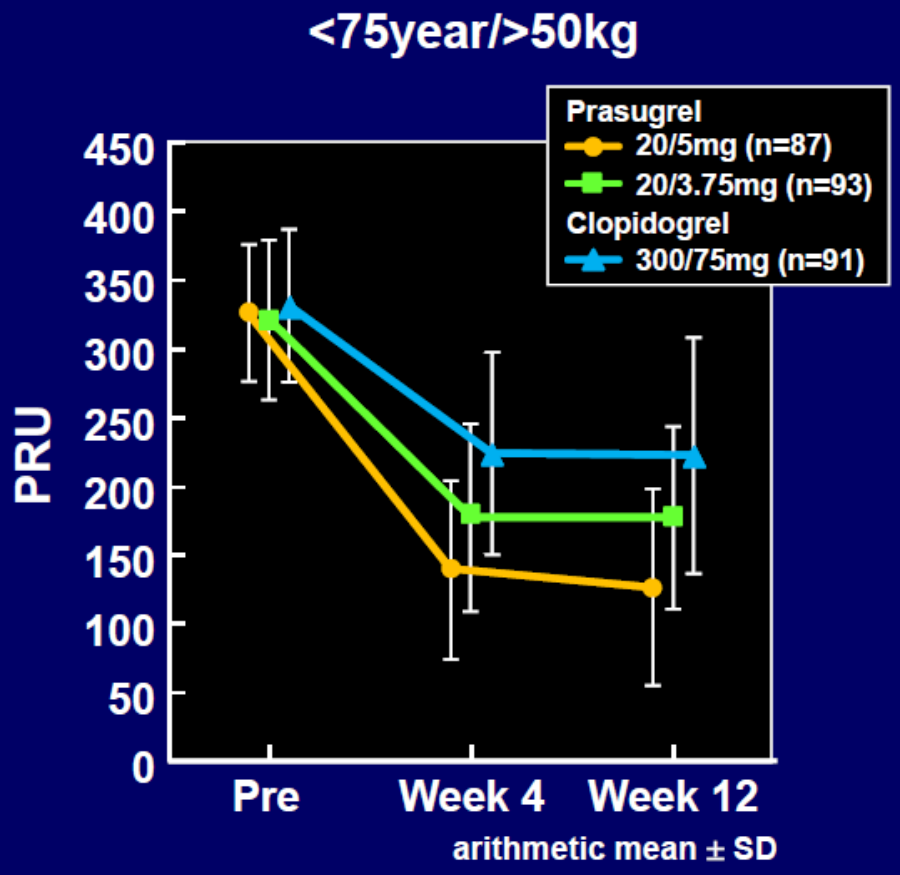
Primary Efficacy Endpoint: **Major Adverse Cardiovascular Events (MACE)**
Cardiovascular(CV) death, Nonfatal MI and Nonfatal ischemic stroke
for during the 24 week follow-up period

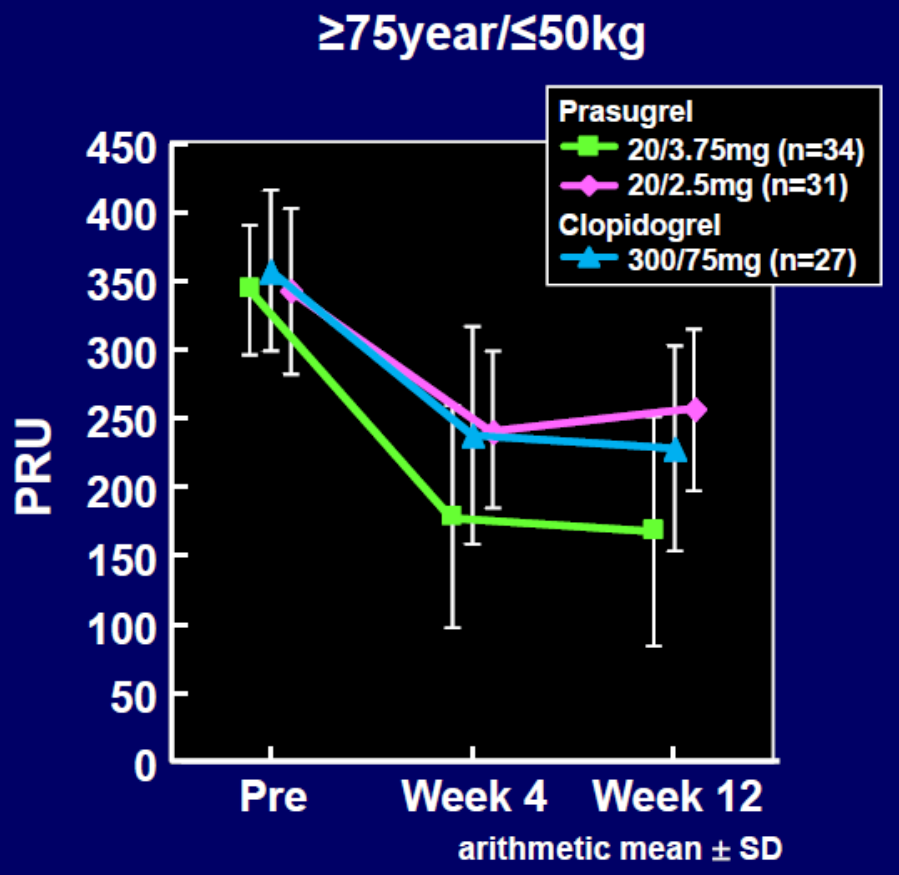
Safety Endpoints:
Non-CABG TIMI major, TIMI minor or clinically relevant bleeding

Results of Japanese Phase II trial
Platelet Aggregation (PRU)

PRASFIT ACS

- **Prasugrel 20 mg LD/3.75 mg MD provided consistent and potent platelet inhibition.**



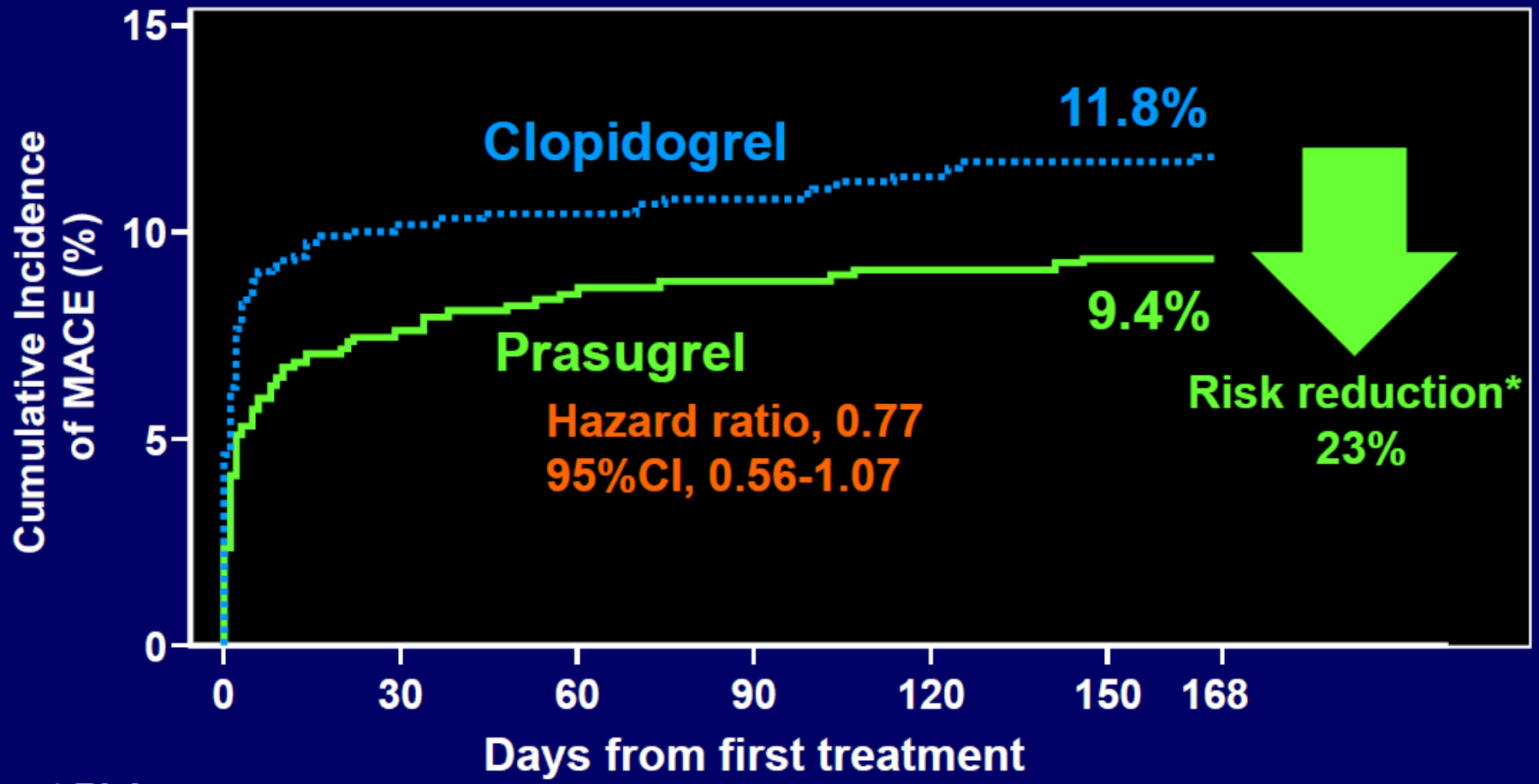


PRU: $P2Y_{12}$ Reaction Unit

Takaaki Isshiki et al. *CVIT 2011*

Primary Efficacy Endpoint (MACE at 24 weeks)

PRASFIT ACS

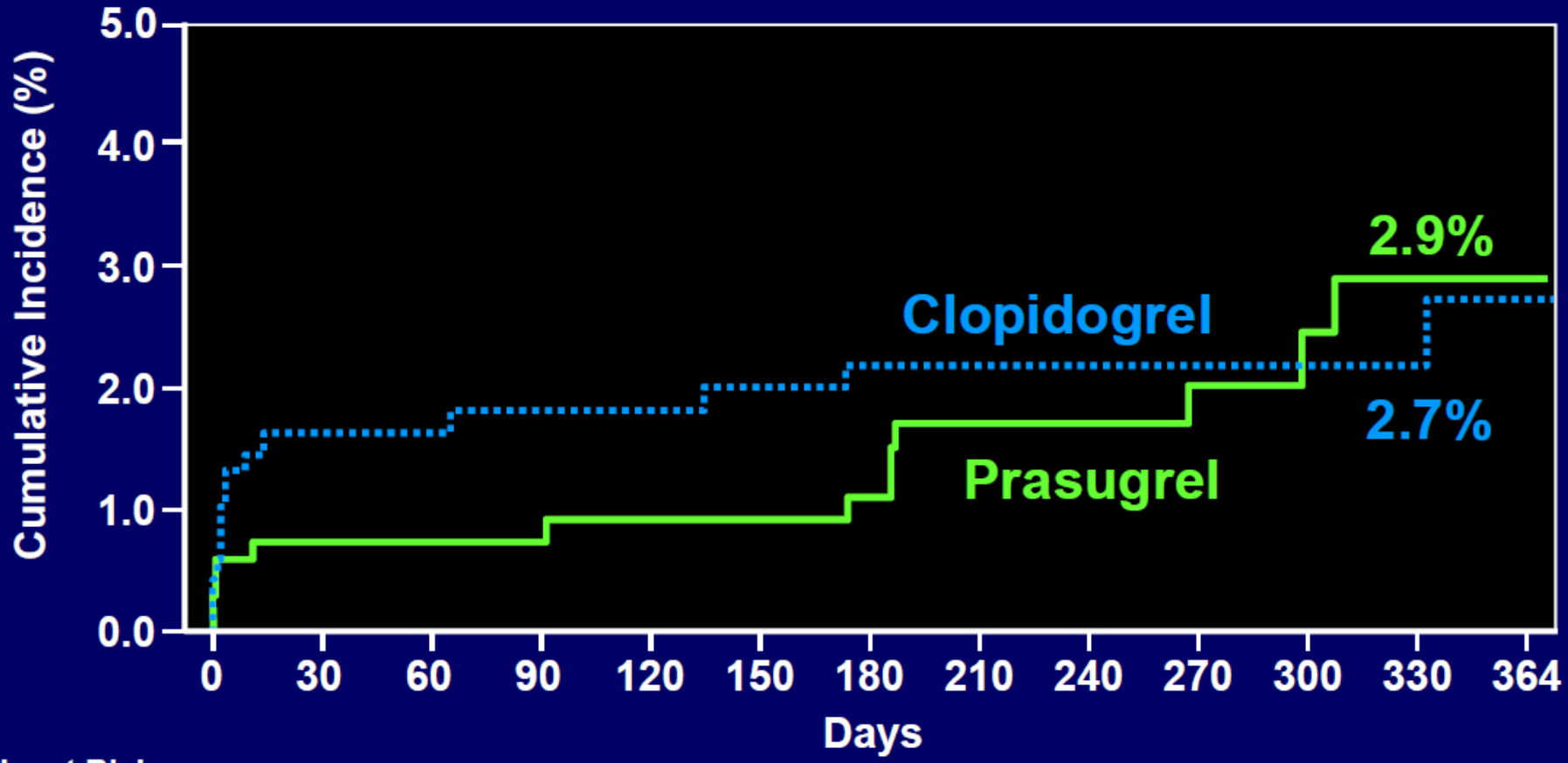


No. at Risk:							
Prasugrel	685	624	617	615	613	611	609
Clopidogrel	678	604	599	597	592	588	584

Based on Full Analysis Set
*Risk reduction: 1-HR (Hazard ratio)

Cumulative Incidence of Non-CABG TIMI Major Bleeding

PRASFIT ACS

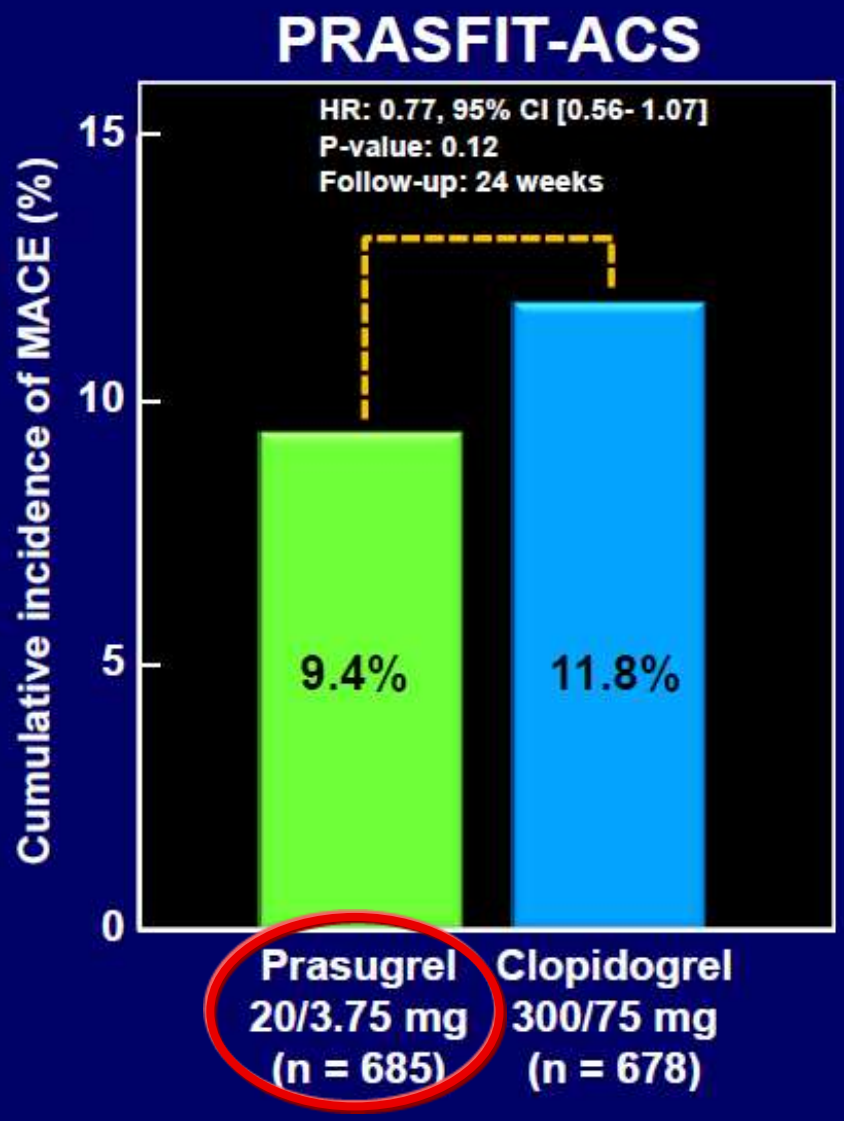


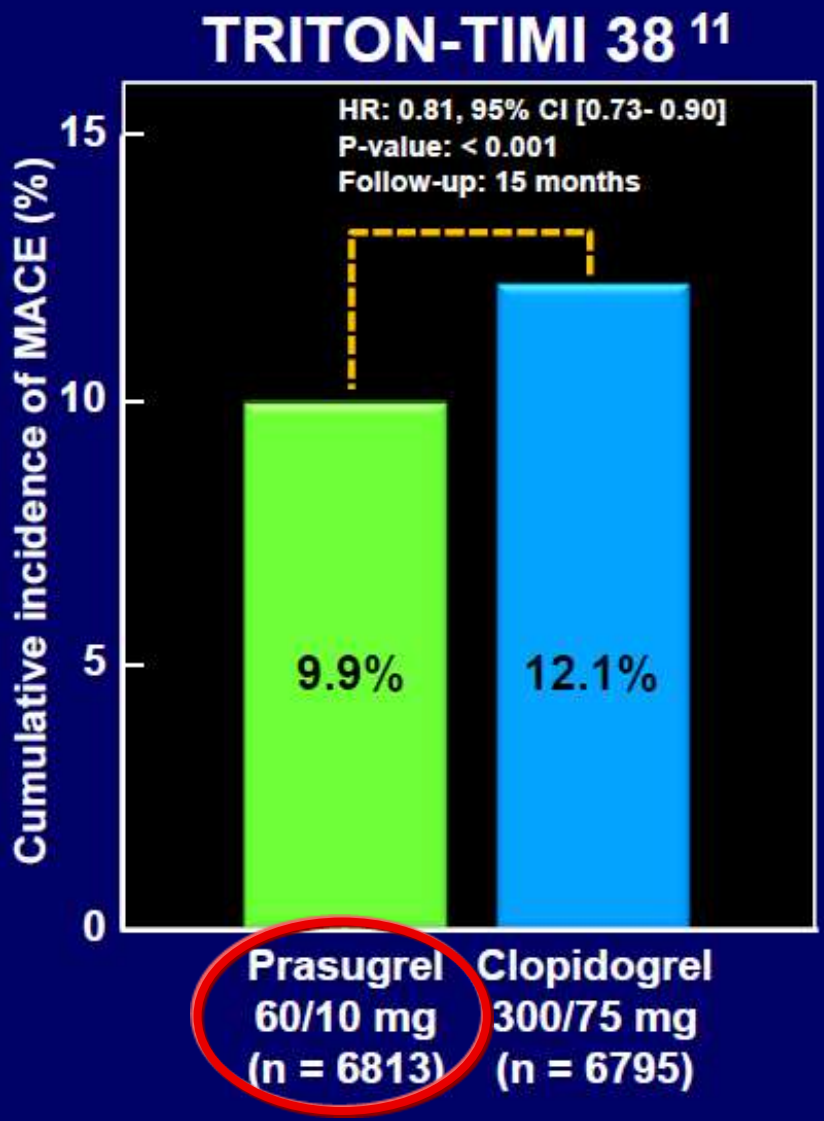
No. at Risk													
Prasugrel	685	560	548	542	536	533	526	420	379	284	228	205	29
Clopidogrel	678	556	538	522	514	503	498	402	366	271	222	191	32

Based on Safety Analysis Set

Primary Endpoint of PRASFIT-ACS and TRITON-TIMI 38

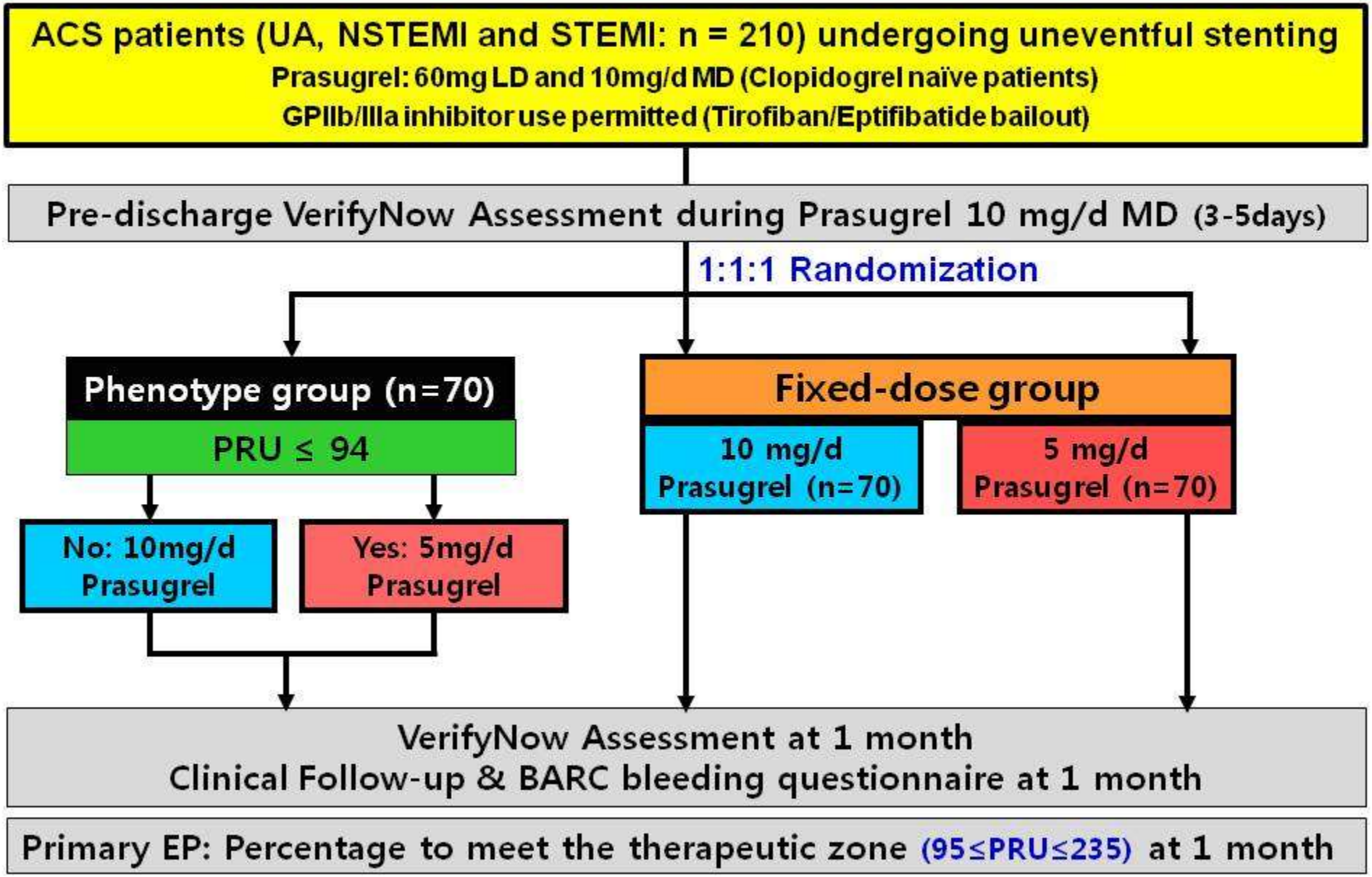
PRASFIT ACS





[11] Wiviott S et al. *NEJM* 2007;357:2001-2015

A-MATCH


ACS patients (UA, NSTEMI and STEMI: n = 210) undergoing uneventful stenting
Prasugrel: 60mg LD and 10mg/d MD (Clopidogrel naïve patients)
GPIIb/IIIa inhibitor use permitted (Tirofiban/Eptifibatide bailout)
Pre-discharge VerifyNow Assessment during Prasugrel 10 mg/d MD (3-5days)
1:1:1 Randomization
Phenotype group (n=70)
PRU ≤ 94
No: 10mg/d Prasugrel
Yes: 5mg/d Prasugrel
Fixed-dose group
10 mg/d Prasugrel (n=70)
5 mg/d Prasugrel (n=70)
VerifyNow Assessment at 1 month
Clinical Follow-up & BARC bleeding questionnaire at 1 month
Primary EP: Percentage to meet the therapeutic zone (95≤PRU≤235) at 1 month

Study Design

PHILO Trial

ACS (STEMI, NSTEMI, UA) patients undergoing PCI

N = 801 (Japan, Korea & Taiwan)

Randomized

Ticagrelor
180mg LD/90mg bid MD

Clopidogrel
300 mg LD/ 75 mg MD

Treatment duration: 24 to 48 weeks
(Combination with aspirin)

LD: Loading Dose
MD: Maintenance Dose

Primary Efficacy Endpoint: **Major Adverse Cardiovascular Events (MACE)**
Cardiovascular(CV) death, Nonfatal MI and Nonfatal ischemic stroke
for during the 24 week follow-up period

Safety Endpoints:
Non-CABG TIMI major, TIMI minor or clinically relevant bleeding

PHILO Trial (n=801): East Asians

	Ticagrelor	Clopidogrel	HR	95% CI
CV death, MI, stroke	10.3%/year	8.5%/year	**1.44**	0.85 to 2.43
PLATO major bleeding	-	-	**1.54**	0.83 to 2.38

Curr Cardiol Rep (2014) 16:485
DOI 10.1007/s11886-014-0485-4

GLOBAL CARDIOVASCULAR HEALTH (SC SMITH, SECTION EDITOR)

"East Asian Paradox": Challenge for the Current Antiplatelet Strategy of "One-Guideline-Fits-All Races" in Acute Coronary Syndrome

Young-Hoon Jeong

Abstract Clinical experiences have suggested that East Asians show the higher risk of warfarin-related intracranial hemorrhage compared with Westerners. Therefore, different target of the International Normalized Ratio (INR) in East Asians (1.6–2.6) has been proposed and adapted in clinical practice. In terms with antiplatelet therapy, recent evidence has supported the concept of "therapeutic level of platelet reactivity" to balance clinical efficacy and safety in patients undergoing percutaneous coronary intervention (PCI) or those

Introduction

In a wide spectrum of patients with high-risk coronary artery disease (CAD), dual antiplatelet therapy (DAPT) with aspirin and $P2Y_{12}$ receptor inhibitor has been the mainstay treatment strategy to prevent ischemic events following percutaneous coronary intervention (PCI) [1]. Unlike aspirin, multiple lines of evidence have demonstrated that clopidogrel therapy is associated with wide interindividual variability in pharmaco-